

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Jacobucci 32S-303**

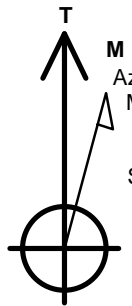
Surface Location: Jacobucci 1N67W32S Pad Sec.32-T1N-R67W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 5059.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1245853.26	3164936.90	40.006750	-104.911200	

Original Well Elev WELL @ 5074.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2338'FSL & 1780'FEL, Sec.32	1.0	0.0	0.0	Point
BHL 500'FSL & 1534'FEL, Sec.5	7703.0	-6925.1	675.3	Point



Azimuths to True North
 Magnetic North: 8.46°
 Magnetic Field
 Strength: 52558.0snT
 Dip Angle: 66.59°
 Date: 10/8/2014
 Model: IGRF2010

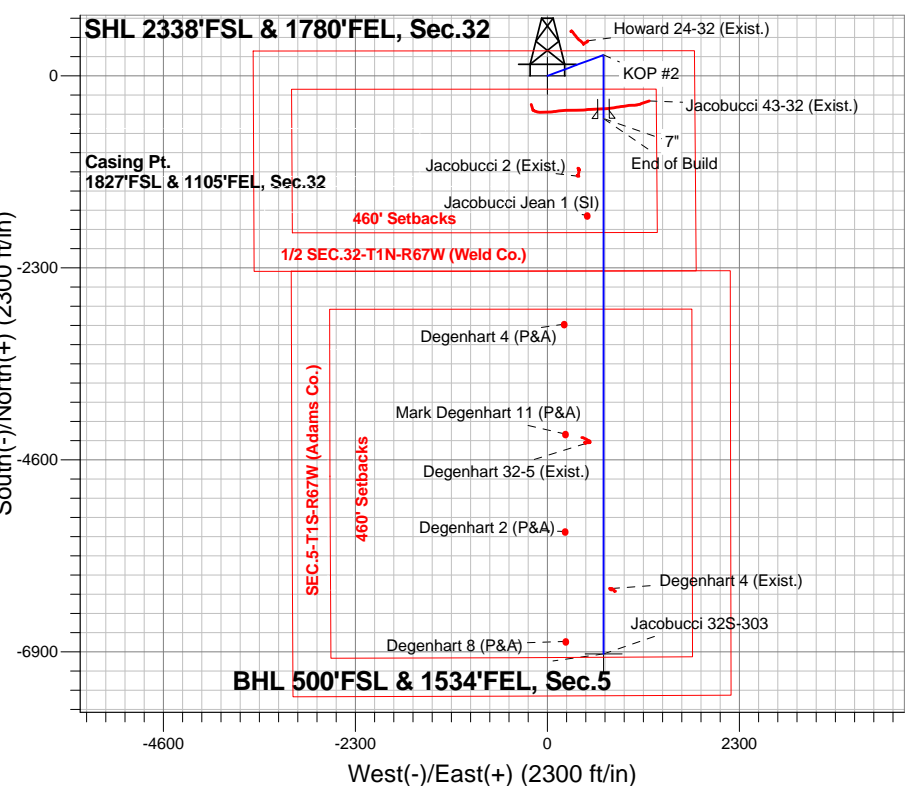
ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	KOP
6930.1	6990.5	KOP #2
7694.0	8189.4	End of Build

Jacobucci 1N67W32S Pad Sec.32-T1N-R67W
 Jacobucci 32S-303
 Plan #1 (10-8-14)
 12:41, October 16 2014

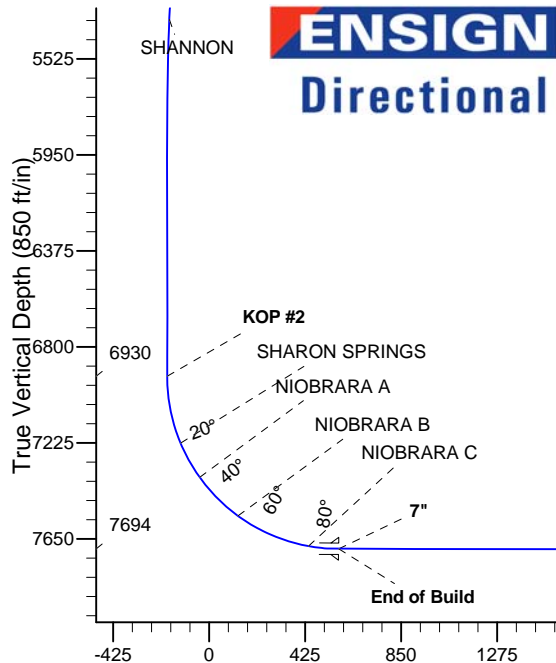
SHL 2338'FSL & 1780'FEL, Sec.32

South(-)/North(+) (2300 ft/in)



BHL 500'FSL & 1534'FEL, Sec.5

West(-)/East(+) (2300 ft/in)



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1698.5	9.97	69.54	1696.0	15.1	40.5	2.00	69.54	-11.1	
4	5361.8	9.97	69.54	5304.0	236.9	634.8	0.00	0.00	-174.1	
5	5860.4	0.00	0.00	5800.0	252.0	675.3	2.00	180.00	-185.3	
6	6990.5	0.00	0.00	6930.1	252.0	675.3	0.00	0.00	-185.3	
7	8189.4	89.92	180.00	7694.0	-510.9	675.3	7.50	180.00	574.0	
8	14603.6	89.92	180.00	7703.0	-6925.1	675.3	0.00	0.00	6957.9	BHL 500'FSL & 1534'FEL, Sec.5

BHL 500'FSL & 1534'FEL, Sec.5

Vertical Section at 174.43° (850 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T1N-R67W

Jacobucci 1N67W32S Pad Sec.32-T1N-R67W

Jacobucci 32S-303

Wellbore #1

Plan: Plan #1 (10-8-14)

Standard Planning Report

16 October, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Project:	SEC.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	North Reference:	True
Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-8-14)		

Project	SEC.32-T1N-R67W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site		Jacobucci 1N67W32S Pad Sec.32-T1N-R67W			
Site Position:		Northing:	1,245,853.29ft	Latitude:	40.006750
From:	Lat/Long	Easting:	3,164,939.70ft	Longitude:	-104.911190
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.38 °

Well	Jacobucci 32S-303					
Well Position	+N/-S	0.0 ft	Northing:	1,245,853.26 ft	Latitude:	40.006750
	+E/-W	-2.8 ft	Easting:	3,164,936.90 ft	Longitude:	-104.911200
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,059.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/8/2014	8.46	66.60	52,558

Design	Plan #1 (10-8-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	174.43

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,698.5	9.97	69.54	1,696.0	15.1	40.5	2.00	2.00	0.00	69.54	
5,361.8	9.97	69.54	5,304.0	236.9	634.8	0.00	0.00	0.00	0.00	
5,860.4	0.00	0.00	5,800.0	252.0	675.3	2.00	-2.00	0.00	180.00	
6,990.5	0.00	0.00	6,930.1	252.0	675.3	0.00	0.00	0.00	0.00	
8,189.4	89.92	180.00	7,694.0	-510.9	675.3	7.50	7.50	0.00	180.00	
14,603.6	89.92	180.00	7,703.0	-6,925.1	675.3	0.00	0.00	0.00	0.00	BHL 500'FSL & 153

Database:	Landmark	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Project:	SEC.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site:	Jacobucci 1N67W32S Pad	North Reference:	True
Well:	Sec.32-T1N-R67W	Survey Calculation Method:	Minimum Curvature
Wellbore:	Jacobucci 32S-303		
Design:	Wellbore #1		
	Plan #1 (10-8-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP									
1,300.0	2.00	69.54	1,300.0	0.6	1.6	-0.4	2.00	2.00	0.00
1,400.0	4.00	69.54	1,399.8	2.4	6.5	-1.8	2.00	2.00	0.00
1,500.0	6.00	69.54	1,499.5	5.5	14.7	-4.0	2.00	2.00	0.00
1,600.0	8.00	69.54	1,598.7	9.7	26.1	-7.2	2.00	2.00	0.00
1,698.5	9.97	69.54	1,696.0	15.1	40.5	-11.1	2.00	2.00	0.00
1,700.0	9.97	69.54	1,697.5	15.2	40.8	-11.2	0.00	0.00	0.00
1,800.0	9.97	69.54	1,796.0	21.3	57.0	-15.6	0.00	0.00	0.00
1,900.0	9.97	69.54	1,894.4	27.3	73.2	-20.1	0.00	0.00	0.00
2,000.0	9.97	69.54	1,992.9	33.4	89.4	-24.5	0.00	0.00	0.00
2,100.0	9.97	69.54	2,091.4	39.4	105.7	-29.0	0.00	0.00	0.00
2,200.0	9.97	69.54	2,189.9	45.5	121.9	-33.4	0.00	0.00	0.00
2,300.0	9.97	69.54	2,288.4	51.5	138.1	-37.9	0.00	0.00	0.00
2,400.0	9.97	69.54	2,386.9	57.6	154.3	-42.3	0.00	0.00	0.00
2,500.0	9.97	69.54	2,485.4	63.6	170.5	-46.8	0.00	0.00	0.00
2,600.0	9.97	69.54	2,583.9	69.7	186.8	-51.2	0.00	0.00	0.00
2,700.0	9.97	69.54	2,682.4	75.7	203.0	-55.7	0.00	0.00	0.00
2,800.0	9.97	69.54	2,780.9	81.8	219.2	-60.1	0.00	0.00	0.00
2,900.0	9.97	69.54	2,879.3	87.9	235.4	-64.6	0.00	0.00	0.00
3,000.0	9.97	69.54	2,977.8	93.9	251.7	-69.0	0.00	0.00	0.00
3,100.0	9.97	69.54	3,076.3	100.0	267.9	-73.5	0.00	0.00	0.00
3,200.0	9.97	69.54	3,174.8	106.0	284.1	-77.9	0.00	0.00	0.00
3,300.0	9.97	69.54	3,273.3	112.1	300.3	-82.4	0.00	0.00	0.00
3,400.0	9.97	69.54	3,371.8	118.1	316.5	-86.8	0.00	0.00	0.00
3,500.0	9.97	69.54	3,470.3	124.2	332.8	-91.3	0.00	0.00	0.00
3,600.0	9.97	69.54	3,568.8	130.2	349.0	-95.7	0.00	0.00	0.00
3,700.0	9.97	69.54	3,667.3	136.3	365.2	-100.2	0.00	0.00	0.00
3,800.0	9.97	69.54	3,765.7	142.3	381.4	-104.6	0.00	0.00	0.00
3,900.0	9.97	69.54	3,864.2	148.4	397.6	-109.1	0.00	0.00	0.00
4,000.0	9.97	69.54	3,962.7	154.4	413.9	-113.5	0.00	0.00	0.00
4,100.0	9.97	69.54	4,061.2	160.5	430.1	-118.0	0.00	0.00	0.00
4,200.0	9.97	69.54	4,159.7	166.5	446.3	-122.4	0.00	0.00	0.00
4,300.0	9.97	69.54	4,258.2	172.6	462.5	-126.9	0.00	0.00	0.00
4,400.0	9.97	69.54	4,356.7	178.7	478.8	-131.3	0.00	0.00	0.00
4,500.0	9.97	69.54	4,455.2	184.7	495.0	-135.8	0.00	0.00	0.00
4,545.5	9.97	69.54	4,500.0	187.5	502.4	-137.8	0.00	0.00	0.00
PARKMAN									
4,600.0	9.97	69.54	4,553.7	190.8	511.2	-140.2	0.00	0.00	0.00
4,700.0	9.97	69.54	4,652.2	196.8	527.4	-144.7	0.00	0.00	0.00

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Project:	SEC.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	North Reference:	True
Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-8-14)		

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)
4,800.0	9.97	69.54	4,750.6	202.9	543.6	-149.1	0.00	0.00	0.00
4,900.0	9.97	69.54	4,849.1	208.9	559.9	-153.6	0.00	0.00	0.00
4,951.6	9.97	69.54	4,900.0	212.0	568.2	-155.9	0.00	0.00	0.00
SUSSEX									
5,000.0	9.97	69.54	4,947.6	215.0	576.1	-158.0	0.00	0.00	0.00
5,100.0	9.97	69.54	5,046.1	221.0	592.3	-162.5	0.00	0.00	0.00
5,200.0	9.97	69.54	5,144.6	227.1	608.5	-166.9	0.00	0.00	0.00
5,300.0	9.97	69.54	5,243.1	233.1	624.8	-171.4	0.00	0.00	0.00
5,361.8	9.97	69.54	5,304.0	236.9	634.8	-174.1	0.00	0.00	0.00
5,400.0	9.21	69.54	5,341.6	239.1	640.7	-175.8	2.00	-2.00	0.00
5,408.5	9.04	69.54	5,350.0	239.6	642.0	-176.1	2.00	-2.00	0.00
SHANNON									
5,500.0	7.21	69.54	5,440.6	244.1	654.1	-179.4	2.00	-2.00	0.00
5,600.0	5.21	69.54	5,540.0	247.9	664.2	-182.2	2.00	-2.00	0.00
5,700.0	3.21	69.54	5,639.7	250.4	671.1	-184.1	2.00	-2.00	0.00
5,800.0	1.21	69.54	5,739.7	251.8	674.7	-185.1	2.00	-2.00	0.00
5,860.4	0.00	0.00	5,800.0	252.0	675.3	-185.3	2.00	-2.00	0.00
5,900.0	0.00	0.00	5,839.6	252.0	675.3	-185.3	0.00	0.00	0.00
6,000.0	0.00	0.00	5,939.6	252.0	675.3	-185.3	0.00	0.00	0.00
6,100.0	0.00	0.00	6,039.6	252.0	675.3	-185.3	0.00	0.00	0.00
6,200.0	0.00	0.00	6,139.6	252.0	675.3	-185.3	0.00	0.00	0.00
6,300.0	0.00	0.00	6,239.6	252.0	675.3	-185.3	0.00	0.00	0.00
6,400.0	0.00	0.00	6,339.6	252.0	675.3	-185.3	0.00	0.00	0.00
6,500.0	0.00	0.00	6,439.6	252.0	675.3	-185.3	0.00	0.00	0.00
6,600.0	0.00	0.00	6,539.6	252.0	675.3	-185.3	0.00	0.00	0.00
6,700.0	0.00	0.00	6,639.6	252.0	675.3	-185.3	0.00	0.00	0.00
6,800.0	0.00	0.00	6,739.6	252.0	675.3	-185.3	0.00	0.00	0.00
6,900.0	0.00	0.00	6,839.6	252.0	675.3	-185.3	0.00	0.00	0.00
6,990.5	0.00	0.00	6,930.1	252.0	675.3	-185.3	0.00	0.00	0.00
KOP #2									
7,000.0	0.72	180.00	6,939.6	251.9	675.3	-185.2	7.54	7.54	0.00
7,100.0	8.22	180.00	7,039.3	244.2	675.3	-177.5	7.50	7.50	0.00
7,200.0	15.72	180.00	7,137.0	223.4	675.3	-156.8	7.50	7.50	0.00
7,294.3	22.79	180.00	7,226.0	192.4	675.3	-125.9	7.50	7.50	0.00
SHARON SPRINGS									
7,300.0	23.22	180.00	7,231.2	190.1	675.3	-123.7	7.50	7.50	0.00
7,400.0	30.72	180.00	7,320.3	144.8	675.3	-78.6	7.50	7.50	0.00
7,467.8	35.80	180.00	7,377.0	107.6	675.3	-41.6	7.50	7.50	0.00
NIORARA A									
7,500.0	38.22	180.00	7,402.7	88.3	675.3	-22.3	7.50	7.50	0.00
7,600.0	45.72	180.00	7,477.0	21.5	675.3	44.2	7.50	7.50	0.00
7,700.0	53.22	180.00	7,541.9	-54.5	675.3	119.8	7.50	7.50	0.00
7,710.2	53.98	180.00	7,548.0	-62.7	675.3	128.0	7.50	7.50	0.00
NIORARA B									
7,800.0	60.72	180.00	7,596.4	-138.3	675.3	203.2	7.50	7.50	0.00
7,900.0	68.22	180.00	7,639.5	-228.4	675.3	292.9	7.50	7.50	0.00
8,000.0	75.72	180.00	7,670.4	-323.5	675.3	387.5	7.50	7.50	0.00
8,054.6	79.81	180.00	7,682.0	-376.8	675.3	440.6	7.50	7.50	0.00
NIORARA C									
8,100.0	83.22	180.00	7,688.7	-421.7	675.3	485.3	7.50	7.50	0.00
8,189.4	89.92	180.00	7,694.0	-510.9	675.3	574.0	7.50	7.50	0.00
End of Build - 7"									

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Project:	SEC.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	North Reference:	True
Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-8-14)		

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)
8,200.0	89.92	180.00	7,694.1	-521.5	675.3	584.6	0.00	0.00	0.00
8,300.0	89.92	180.00	7,694.2	-621.5	675.3	684.1	0.00	0.00	0.00
8,400.0	89.92	180.00	7,694.3	-721.5	675.3	783.6	0.00	0.00	0.00
8,500.0	89.92	180.00	7,694.5	-821.5	675.3	883.2	0.00	0.00	0.00
8,600.0	89.92	180.00	7,694.6	-921.5	675.3	982.7	0.00	0.00	0.00
8,700.0	89.92	180.00	7,694.8	-1,021.5	675.3	1,082.2	0.00	0.00	0.00
8,800.0	89.92	180.00	7,694.9	-1,121.5	675.3	1,181.7	0.00	0.00	0.00
8,900.0	89.92	180.00	7,695.0	-1,221.5	675.3	1,281.3	0.00	0.00	0.00
9,000.0	89.92	180.00	7,695.2	-1,321.5	675.3	1,380.8	0.00	0.00	0.00
9,100.0	89.92	180.00	7,695.3	-1,421.5	675.3	1,480.3	0.00	0.00	0.00
9,200.0	89.92	180.00	7,695.5	-1,521.5	675.3	1,579.9	0.00	0.00	0.00
9,300.0	89.92	180.00	7,695.6	-1,621.5	675.3	1,679.4	0.00	0.00	0.00
9,400.0	89.92	180.00	7,695.7	-1,721.5	675.3	1,778.9	0.00	0.00	0.00
9,500.0	89.92	180.00	7,695.9	-1,821.5	675.3	1,878.4	0.00	0.00	0.00
9,600.0	89.92	180.00	7,696.0	-1,921.5	675.3	1,978.0	0.00	0.00	0.00
9,700.0	89.92	180.00	7,696.2	-2,021.5	675.3	2,077.5	0.00	0.00	0.00
9,800.0	89.92	180.00	7,696.3	-2,121.5	675.3	2,177.0	0.00	0.00	0.00
9,900.0	89.92	180.00	7,696.4	-2,221.5	675.3	2,276.5	0.00	0.00	0.00
10,000.0	89.92	180.00	7,696.6	-2,321.5	675.3	2,376.1	0.00	0.00	0.00
10,100.0	89.92	180.00	7,696.7	-2,421.5	675.3	2,475.6	0.00	0.00	0.00
10,200.0	89.92	180.00	7,696.9	-2,521.5	675.3	2,575.1	0.00	0.00	0.00
10,300.0	89.92	180.00	7,697.0	-2,621.5	675.3	2,674.7	0.00	0.00	0.00
10,400.0	89.92	180.00	7,697.1	-2,721.5	675.3	2,774.2	0.00	0.00	0.00
10,500.0	89.92	180.00	7,697.3	-2,821.5	675.3	2,873.7	0.00	0.00	0.00
10,600.0	89.92	180.00	7,697.4	-2,921.5	675.3	2,973.2	0.00	0.00	0.00
10,700.0	89.92	180.00	7,697.5	-3,021.5	675.3	3,072.8	0.00	0.00	0.00
10,800.0	89.92	180.00	7,697.7	-3,121.5	675.3	3,172.3	0.00	0.00	0.00
10,900.0	89.92	180.00	7,697.8	-3,221.5	675.3	3,271.8	0.00	0.00	0.00
11,000.0	89.92	180.00	7,698.0	-3,321.5	675.3	3,371.4	0.00	0.00	0.00
11,100.0	89.92	180.00	7,698.1	-3,421.5	675.3	3,470.9	0.00	0.00	0.00
11,200.0	89.92	180.00	7,698.2	-3,521.5	675.3	3,570.4	0.00	0.00	0.00
11,300.0	89.92	180.00	7,698.4	-3,621.5	675.3	3,669.9	0.00	0.00	0.00
11,400.0	89.92	180.00	7,698.5	-3,721.5	675.3	3,769.5	0.00	0.00	0.00
11,500.0	89.92	180.00	7,698.7	-3,821.5	675.3	3,869.0	0.00	0.00	0.00
11,600.0	89.92	180.00	7,698.8	-3,921.5	675.3	3,968.5	0.00	0.00	0.00
11,700.0	89.92	180.00	7,698.9	-4,021.5	675.3	4,068.0	0.00	0.00	0.00
11,800.0	89.92	180.00	7,699.1	-4,121.5	675.3	4,167.6	0.00	0.00	0.00
11,900.0	89.92	180.00	7,699.2	-4,221.5	675.3	4,267.1	0.00	0.00	0.00
12,000.0	89.92	180.00	7,699.4	-4,321.5	675.3	4,366.6	0.00	0.00	0.00
12,100.0	89.92	180.00	7,699.5	-4,421.5	675.3	4,466.2	0.00	0.00	0.00
12,200.0	89.92	180.00	7,699.6	-4,521.5	675.3	4,565.7	0.00	0.00	0.00
12,300.0	89.92	180.00	7,699.8	-4,621.5	675.3	4,665.2	0.00	0.00	0.00
12,400.0	89.92	180.00	7,699.9	-4,721.5	675.3	4,764.7	0.00	0.00	0.00
12,500.0	89.92	180.00	7,700.1	-4,821.5	675.3	4,864.3	0.00	0.00	0.00
12,600.0	89.92	180.00	7,700.2	-4,921.5	675.3	4,963.8	0.00	0.00	0.00
12,700.0	89.92	180.00	7,700.3	-5,021.5	675.3	5,063.3	0.00	0.00	0.00
12,800.0	89.92	180.00	7,700.5	-5,121.5	675.3	5,162.9	0.00	0.00	0.00
12,900.0	89.92	180.00	7,700.6	-5,221.5	675.3	5,262.4	0.00	0.00	0.00
13,000.0	89.92	180.00	7,700.8	-5,321.5	675.3	5,361.9	0.00	0.00	0.00
13,100.0	89.92	180.00	7,700.9	-5,421.5	675.3	5,461.4	0.00	0.00	0.00
13,200.0	89.92	180.00	7,701.0	-5,521.5	675.3	5,561.0	0.00	0.00	0.00
13,300.0	89.92	180.00	7,701.2	-5,621.5	675.3	5,660.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Project:	SEC.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site:	Jacobucci 1N67W32S Pad	North Reference:	True
Well:	Sec.32-T1N-R67W	Survey Calculation Method:	Minimum Curvature
Wellbore:	Jacobucci 32S-303		
Design:	Wellbore #1		
	Plan #1 (10-8-14)		

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)
13,400.0	89.92	180.00	7,701.3	-5,721.5	675.3	5,760.0	0.00	0.00	0.00
13,500.0	89.92	180.00	7,701.5	-5,821.5	675.3	5,859.5	0.00	0.00	0.00
13,600.0	89.92	180.00	7,701.6	-5,921.5	675.3	5,959.1	0.00	0.00	0.00
13,700.0	89.92	180.00	7,701.7	-6,021.5	675.3	6,058.6	0.00	0.00	0.00
13,800.0	89.92	180.00	7,701.9	-6,121.5	675.3	6,158.1	0.00	0.00	0.00
13,900.0	89.92	180.00	7,702.0	-6,221.5	675.3	6,257.7	0.00	0.00	0.00
14,000.0	89.92	180.00	7,702.2	-6,321.5	675.3	6,357.2	0.00	0.00	0.00
14,100.0	89.92	180.00	7,702.3	-6,421.5	675.3	6,456.7	0.00	0.00	0.00
14,200.0	89.92	180.00	7,702.4	-6,521.5	675.3	6,556.2	0.00	0.00	0.00
14,300.0	89.92	180.00	7,702.6	-6,621.5	675.3	6,655.8	0.00	0.00	0.00
14,400.0	89.92	180.00	7,702.7	-6,721.5	675.3	6,755.3	0.00	0.00	0.00
14,500.0	89.92	180.00	7,702.9	-6,821.5	675.3	6,854.8	0.00	0.00	0.00
14,600.0	89.92	180.00	7,703.0	-6,921.5	675.3	6,954.4	0.00	0.00	0.00
14,603.6	89.92	180.00	7,703.0	-6,925.1	675.3	6,957.9	0.00	0.00	0.00

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 500'FSL & 1534'I	0.00	0.00	7,703.0	-6,925.1	675.3	1,238,933.07	3,165,658.15	39.987740	-104.908790
- plan hits target center									
- Point									
SHL 2338'FSL & 178C	0.00	0.00	1.0	0.0	0.0	1,245,853.27	3,164,936.90	40.006750	-104.911200
- plan hits target center									
- Point									

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
8,189.4	7,694.0	7"	7	7-1/2

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,545.5	4,500.0	PARKMAN		0.00	
4,951.6	4,900.0	SUSSEX		0.00	
5,408.5	5,350.0	SHANNON		0.00	
7,294.3	7,226.0	SHARON SPRINGS		0.00	
7,467.8	7,377.0	NIOBRARA A		0.00	
7,710.2	7,548.0	NIOBRARA B		0.00	
8,054.6	7,682.0	NIOBRARA C		0.00	
	7,818.0	FT HAYS		0.00	
	7,839.0	CODELL		0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Project:	SEC.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site:	Jacobucci 1N67W32S Pad	North Reference:	True
	Sec.32-T1N-R67W		
Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-8-14)		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,200.0	1,200.0	0.0	0.0	KOP	
6,990.5	6,930.1	252.0	675.3	KOP #2	
8,189.4	7,694.0	-510.9	675.3	End of Build	



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T1N-R67W

Jacobucci 1N67W32S Pad Sec.32-T1N-R67W

Jacobucci 32S-303

Wellbore #1

Plan #1 (10-8-14)

Anticollision Report

16 October, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (10-8-14)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 10/16/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,603.6	Plan #1 (10-8-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existings Sec.32-T1N-R67W						
Degenhart 2 (P&A) - Wellbore #1 - Wellbore #1	13,135.9	7,773.0	460.4	198.4	1.757	CC, ES, SF
Degenhart 32-5 (Exist.) - Wellbore #1 - Wellbore #1	12,073.1	7,768.7	222.8	122.2	2.214	CC, ES, SF
Degenhart 4 (Exist.) - Wellbore #1 - Wellbore #1	13,818.6	7,778.5	84.4	-51.9	0.619	Level 1, CC, ES, SF
Degenhart 4 (P&A) - Wellbore #1 - Wellbore #1	5,300.0	5,201.0	3,234.8	3,114.7	26.937	SF
Degenhart 4 (P&A) - Wellbore #1 - Wellbore #1	10,648.3	5,201.0	2,572.1	2,527.1	57.146	CC, ES
Degenhart 8 (P&A) - Wellbore #1 - Wellbore #1	14,451.0	5,220.0	2,609.7	2,536.3	35.561	CC, ES
Degenhart 8 (P&A) - Wellbore #1 - Wellbore #1	14,603.6	5,220.0	2,614.2	2,539.6	35.050	SF
Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1	5,315.2	5,295.6	257.5	230.5	9.520	CC, ES
Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1	7,002.4	6,959.0	273.6	240.6	8.285	SF
Jacobucci 2 (Exist.) - Wellbore #1 - Wellbore #1	8,874.4	7,727.8	319.0	275.2	7.286	CC, ES
Jacobucci 2 (Exist.) - Wellbore #1 - Wellbore #1	8,900.0	7,728.0	320.0	275.8	7.244	SF
Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1	0.0	0.0	393.2			
Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1	100.0	95.8	393.4	393.1	1,760.611	ES
Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1	8,000.0	7,829.3	496.2	460.1	13.732	SF
Jacobucci Jean 1 (SI) - Wellbore #1 - Wellbore #1	9,350.6	7,714.7	196.3	5.1	1.027	Level 2, CC, ES, SF
Mark Degenhart 11 (P&A) - Wellbore #1 - Wellbore #1	5,500.0	5,151.0	4,569.2	4,449.2	38.078	SF
Mark Degenhart 11 (P&A) - Wellbore #1 - Wellbore #1	11,966.6	5,151.0	2,636.3	2,582.6	49.100	CC
Mark Degenhart 11 (P&A) - Wellbore #1 - Wellbore #1	12,000.0	5,151.0	2,636.6	2,582.6	48.869	ES
Jacobucci 1N67W32S Pad Sec.32-T1N-R67W						
Jacobucci 32S-203 - Wellbore #1 - Plan #2 (10-8-14)	1,200.0	1,200.0	58.8	53.7	11.380	CC, ES
Jacobucci 32S-203 - Wellbore #1 - Plan #2 (10-8-14)	14,603.6	14,465.6	672.8	406.4	2.525	SF
Jacobucci 32S-323 - Wellbore #1 - Plan #2 (10-8-14)	800.0	800.0	56.0	52.7	16.618	CC, ES
Jacobucci 32S-323 - Wellbore #1 - Plan #2 (10-8-14)	14,603.6	14,713.5	753.8	484.9	2.804	SF
Jacobucci 32S-403 - Wellbore #1 - Plan #1 (10-8-14)	1,000.0	1,000.0	28.0	23.7	6.560	CC, ES
Jacobucci 32S-403 - Wellbore #1 - Plan #1 (10-8-14)	14,603.6	14,757.2	386.8	139.8	1.566	SF
Jacobucci 32S-423 - Wellbore #1 - Plan #2 (10-8-14)	1,200.0	1,200.0	30.8	25.6	5.961	CC, ES
Jacobucci 32S-423 - Wellbore #1 - Plan #2 (10-8-14)	14,603.6	14,711.9	249.7	28.9	1.131	Level 2, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 8097-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
0.0	0.0	72.0	72.0	0.0	1.4	177.74	-5,457.4	214.9	5,461.6	5,460.2	1.44	3,792.265			
100.0	100.0	172.0	172.0	0.1	3.4	177.74	-5,457.4	214.9	5,461.6	5,458.1	3.55	1,537.366			
200.0	200.0	272.0	272.0	0.3	5.4	177.74	-5,457.4	214.9	5,461.6	5,455.8	5.78	945.350			
300.0	300.0	372.0	372.0	0.6	7.4	177.74	-5,457.4	214.9	5,461.6	5,453.6	8.00	682.522			
400.0	400.0	472.0	472.0	0.8	9.4	177.74	-5,457.4	214.9	5,461.6	5,451.4	10.23	534.045			
500.0	500.0	572.0	572.0	1.0	11.4	177.74	-5,457.4	214.9	5,461.6	5,449.2	12.45	438.626			
600.0	600.0	672.0	672.0	1.2	13.4	177.74	-5,457.4	214.9	5,461.6	5,446.9	14.68	372.136			
700.0	700.0	772.0	772.0	1.5	15.4	177.74	-5,457.4	214.9	5,461.6	5,444.7	16.90	323.150			
800.0	800.0	872.0	872.0	1.7	17.4	177.74	-5,457.4	214.9	5,461.6	5,442.5	19.13	285.561			
900.0	900.0	972.0	972.0	1.9	19.4	177.74	-5,457.4	214.9	5,461.6	5,440.3	21.35	255.805			
1,000.0	1,000.0	1,072.0	1,072.0	2.1	21.4	177.74	-5,457.4	214.9	5,461.6	5,438.0	23.58	231.665			
1,100.0	1,100.0	1,172.0	1,172.0	2.4	23.4	177.74	-5,457.4	214.9	5,461.6	5,435.8	25.80	211.689			
1,200.0	1,200.0	1,272.0	1,272.0	2.6	25.4	177.74	-5,457.4	214.9	5,461.6	5,433.6	28.02	194.884			
1,300.0	1,300.0	1,372.0	1,372.0	2.8	27.4	108.22	-5,457.4	214.9	5,462.2	5,431.9	30.24	180.631			
1,400.0	1,399.8	1,471.8	1,471.8	3.0	29.4	108.24	-5,457.4	214.9	5,463.8	5,431.4	32.44	168.409			
1,500.0	1,499.5	1,571.5	1,571.5	3.2	31.4	108.27	-5,457.4	214.9	5,466.5	5,431.9	34.65	157.771			
1,600.0	1,598.7	1,670.7	1,670.7	3.5	33.4	108.32	-5,457.4	214.9	5,470.4	5,433.5	36.86	148.421			
1,700.0	1,697.5	1,769.5	1,769.5	3.7	35.4	108.38	-5,457.4	214.9	5,475.4	5,436.3	39.07	140.126			
1,800.0	1,796.0	1,868.0	1,868.0	4.0	37.4	108.55	-5,457.4	214.9	5,480.9	5,439.6	41.33	132.619			
1,900.0	1,894.4	1,966.4	1,966.4	4.3	39.3	108.72	-5,457.4	214.9	5,486.5	5,442.9	43.60	125.846			
2,000.0	1,992.9	2,064.9	2,064.9	4.7	41.3	108.89	-5,457.4	214.9	5,492.2	5,446.3	45.88	119.713			
2,100.0	2,091.4	2,163.4	2,163.4	5.0	43.3	109.05	-5,457.4	214.9	5,497.9	5,449.7	48.17	114.139			
2,200.0	2,189.9	2,261.9	2,261.9	5.3	45.2	109.22	-5,457.4	214.9	5,503.7	5,453.2	50.47	109.055			
2,300.0	2,288.4	2,360.4	2,360.4	5.7	47.2	109.39	-5,457.4	214.9	5,509.5	5,456.7	52.77	104.402			
2,400.0	2,386.9	2,458.9	2,458.9	6.0	49.2	109.56	-5,457.4	214.9	5,515.3	5,460.2	55.08	100.131			
2,500.0	2,485.4	2,557.4	2,557.4	6.4	51.1	109.72	-5,457.4	214.9	5,521.2	5,463.8	57.39	96.197			
2,600.0	2,583.9	2,655.9	2,655.9	6.8	53.1	109.89	-5,457.4	214.9	5,527.1	5,467.4	59.71	92.563			
2,700.0	2,682.4	2,754.4	2,754.4	7.1	55.1	110.06	-5,457.4	214.9	5,533.1	5,471.1	62.03	89.198			
2,800.0	2,780.9	2,852.9	2,852.9	7.5	57.1	110.22	-5,457.4	214.9	5,539.2	5,474.8	64.35	86.073			
2,900.0	2,879.3	2,951.3	2,951.3	7.9	59.0	110.39	-5,457.4	214.9	5,545.3	5,478.6	66.68	83.164			
3,000.0	2,977.8	3,049.8	3,049.8	8.3	61.0	110.55	-5,457.4	214.9	5,551.4	5,482.4	69.00	80.450			
3,100.0	3,076.3	3,148.3	3,148.3	8.6	63.0	110.72	-5,457.4	214.9	5,557.6	5,486.3	71.33	77.912			
3,200.0	3,174.8	3,246.8	3,246.8	9.0	64.9	110.88	-5,457.4	214.9	5,563.8	5,490.2	73.66	75.534			
3,300.0	3,273.3	3,345.3	3,345.3	9.4	66.9	111.05	-5,457.4	214.9	5,570.1	5,494.1	75.99	73.301			
3,400.0	3,371.8	3,443.8	3,443.8	9.8	68.9	111.21	-5,457.4	214.9	5,576.4	5,498.1	78.32	71.201			
3,500.0	3,470.3	3,542.3	3,542.3	10.2	70.8	111.38	-5,457.4	214.9	5,582.8	5,502.2	80.65	69.223			
3,600.0	3,568.8	3,640.8	3,640.8	10.5	72.8	111.54	-5,457.4	214.9	5,589.2	5,506.2	82.98	67.356			
3,700.0	3,667.3	3,739.3	3,739.3	10.9	74.8	111.70	-5,457.4	214.9	5,595.7	5,510.4	85.31	65.591			
3,800.0	3,765.7	3,837.7	3,837.7	11.3	76.8	111.86	-5,457.4	214.9	5,602.2	5,514.5	87.64	63.921			
3,900.0	3,864.2	3,936.2	3,936.2	11.7	78.7	112.03	-5,457.4	214.9	5,608.7	5,518.8	89.97	62.337			
4,000.0	3,962.7	4,034.7	4,034.7	12.1	80.7	112.19	-5,457.4	214.9	5,615.3	5,523.0	92.31	60.834			
4,100.0	4,061.2	4,133.2	4,133.2	12.5	82.7	112.35	-5,457.4	214.9	5,622.0	5,527.4	94.64	59.406			
4,200.0	4,159.7	4,231.7	4,231.7	12.9	84.6	112.51	-5,457.4	214.9	5,628.7	5,531.7	96.97	58.046			
4,300.0	4,258.2	4,330.2	4,330.2	13.2	86.6	112.67	-5,457.4	214.9	5,635.4	5,536.1	99.30	56.751			
4,400.0	4,356.7	4,428.7	4,428.7	13.6	88.6	112.83	-5,457.4	214.9	5,642.2	5,540.6	101.63	55.516			
4,500.0	4,455.2	4,527.2	4,527.2	14.0	90.5	112.99	-5,457.4	214.9	5,649.0	5,545.1	103.96	54.337			
4,600.0	4,553.7	4,625.7	4,625.7	14.4	92.5	113.15	-5,457.4	214.9	5,655.9	5,549.6	106.29	53.210			
4,700.0	4,652.2	4,724.2	4,724.2	14.8	94.5	113.31	-5,457.4	214.9	5,662.8	5,554.2	108.62	52.132			
4,800.0	4,750.6	4,822.6	4,822.6	15.2	96.5	113.47	-5,457.4	214.9	5,669.8	5,558.8	110.95	51.100			
4,900.0	4,849.1	4,921.1	4,921.1	15.6	98.4	113.63	-5,457.4	214.9	5,676.8	5,563.5	113.28	50.111			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 8097-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
5,000.0	4,947.6	5,019.6	5,019.6	16.0	100.4	113.78	-5,457.4	214.9	5,683.8	5,568.2	115.61	49.162			
5,100.0	5,046.1	5,118.1	5,118.1	16.4	102.4	113.94	-5,457.4	214.9	5,690.9	5,573.0	117.94	48.251			
5,200.0	5,144.6	5,216.6	5,216.6	16.8	104.3	114.10	-5,457.4	214.9	5,698.1	5,577.8	120.27	47.376			
5,300.0	5,243.1	5,315.1	5,315.1	17.2	106.3	114.25	-5,457.4	214.9	5,705.3	5,582.7	122.60	46.535			
5,400.0	5,341.6	5,413.6	5,413.6	17.5	108.3	114.46	-5,457.4	214.9	5,712.4	5,587.4	124.95	45.718			
5,500.0	5,440.6	5,512.6	5,512.6	17.8	110.3	114.70	-5,457.4	214.9	5,718.4	5,591.1	127.26	44.936			
5,600.0	5,540.0	5,612.0	5,612.0	18.0	112.2	114.88	-5,457.4	214.9	5,722.9	5,593.4	129.53	44.183			
5,700.0	5,639.7	5,711.7	5,711.7	18.2	114.2	115.00	-5,457.4	214.9	5,726.0	5,594.3	131.75	43.460			
5,800.0	5,739.7	5,811.7	5,811.7	18.4	116.2	115.06	-5,457.4	214.9	5,727.6	5,593.7	133.93	42.766			
5,900.0	5,839.6	5,911.6	5,911.6	18.5	118.2	-175.39	-5,457.4	214.9	5,727.9	5,591.8	136.07	42.095			
6,000.0	5,939.6	6,011.6	6,011.6	18.7	120.2	-175.39	-5,457.4	214.9	5,727.9	5,589.7	138.23	41.439			
6,100.0	6,039.6	6,111.6	6,111.6	18.8	122.2	-175.39	-5,457.4	214.9	5,727.9	5,587.5	140.38	40.802			
6,200.0	6,139.6	6,211.6	6,211.6	19.0	124.2	-175.39	-5,457.4	214.9	5,727.9	5,585.4	142.54	40.184			
6,300.0	6,239.6	6,311.6	6,311.6	19.1	126.2	-175.39	-5,457.4	214.9	5,727.9	5,583.2	144.70	39.584			
6,400.0	6,339.6	6,411.6	6,411.6	19.3	128.2	-175.39	-5,457.4	214.9	5,727.9	5,581.1	146.87	39.001			
6,500.0	6,439.6	6,511.6	6,511.6	19.5	130.2	-175.39	-5,457.4	214.9	5,727.9	5,578.9	149.03	38.435			
6,600.0	6,539.6	6,611.6	6,611.6	19.6	132.2	-175.39	-5,457.4	214.9	5,727.9	5,576.7	151.19	37.885			
6,700.0	6,639.6	6,711.6	6,711.6	19.8	134.2	-175.39	-5,457.4	214.9	5,727.9	5,574.6	153.36	37.350			
6,800.0	6,739.6	6,811.6	6,811.6	19.9	136.2	-175.39	-5,457.4	214.9	5,727.9	5,572.4	155.53	36.829			
6,900.0	6,839.6	6,911.6	6,911.6	20.1	138.2	-175.39	-5,457.4	214.9	5,727.9	5,570.2	157.69	36.323			
7,000.0	6,939.6	7,011.6	7,011.6	20.3	140.2	4.61	-5,457.4	214.9	5,727.9	5,568.0	159.84	35.834			
7,100.0	7,039.3	7,111.3	7,111.3	20.4	142.2	4.66	-5,457.4	214.9	5,720.1	5,559.8	160.29	35.687			
7,200.0	7,137.0	7,209.0	7,209.0	20.4	144.2	4.81	-5,457.4	214.9	5,699.4	5,541.5	157.95	36.085			
7,300.0	7,231.2	7,303.2	7,303.2	20.5	146.1	5.07	-5,457.4	214.9	5,666.3	5,513.5	152.79	37.086			
7,400.0	7,320.3	7,392.3	7,392.3	20.5	147.8	5.46	-5,457.4	214.9	5,621.1	5,476.2	144.85	38.805			
7,500.0	7,402.7	7,474.7	7,474.7	20.5	149.5	6.03	-5,457.4	214.9	5,564.7	5,430.4	134.29	41.438			
7,600.0	7,477.0	7,549.0	7,549.0	20.5	151.0	6.86	-5,457.4	214.9	5,498.1	5,376.8	121.38	45.296			
7,700.0	7,541.9	7,613.9	7,613.9	20.6	152.3	8.10	-5,457.4	214.9	5,422.5	5,315.8	106.64	50.847			
7,800.0	7,596.4	7,668.4	7,668.4	20.7	153.4	10.04	-5,457.4	214.9	5,339.0	5,247.9	91.13	58.587			
7,900.0	7,639.5	7,711.5	7,711.5	21.0	154.2	13.35	-5,457.4	214.9	5,249.2	5,171.6	77.62	67.628			
8,000.0	7,670.4	7,742.4	7,742.4	21.4	154.8	19.97	-5,457.4	214.9	5,154.5	5,079.5	75.04	68.691			
8,100.0	7,688.7	7,760.7	7,760.7	21.9	155.2	37.74	-5,457.4	214.9	5,056.7	4,947.5	109.20	46.308			
8,200.0	7,694.1	7,766.1	7,766.1	22.7	155.3	89.14	-5,457.4	214.9	4,957.3	4,781.9	175.41	28.261			
8,300.0	7,694.2	7,766.2	7,766.2	23.6	155.3	89.16	-5,457.4	214.9	4,857.8	4,681.3	176.48	27.525			
8,400.0	7,694.3	7,766.3	7,766.3	24.7	155.3	89.18	-5,457.4	214.9	4,758.2	4,580.5	177.67	26.781			
8,500.0	7,694.5	7,766.5	7,766.5	25.8	155.3	89.19	-5,457.4	214.9	4,658.7	4,479.7	178.95	26.033			
8,600.0	7,694.6	7,766.6	7,766.6	27.1	155.3	89.21	-5,457.4	214.9	4,559.2	4,378.9	180.32	25.284			
8,700.0	7,694.8	7,766.8	7,766.8	28.4	155.3	89.23	-5,457.4	214.9	4,459.7	4,278.0	181.75	24.538			
8,800.0	7,694.9	7,766.9	7,766.9	29.8	155.3	89.25	-5,457.4	214.9	4,360.3	4,177.0	183.24	23.795			
8,900.0	7,695.0	7,767.0	7,767.0	31.2	155.3	89.26	-5,457.4	214.9	4,260.8	4,076.1	184.78	23.059			
9,000.0	7,695.2	7,767.2	7,767.2	32.7	155.3	89.28	-5,457.4	214.9	4,161.4	3,975.1	186.36	22.330			
9,100.0	7,695.3	7,767.3	7,767.3	34.3	155.3	89.30	-5,457.4	214.9	4,062.1	3,874.1	187.98	21.609			
9,200.0	7,695.5	7,767.5	7,767.5	35.8	155.3	89.32	-5,457.4	214.9	3,962.7	3,773.1	189.63	20.897			
9,300.0	7,695.6	7,767.6	7,767.6	37.5	155.4	89.33	-5,457.4	214.9	3,863.4	3,672.1	191.31	20.195			
9,400.0	7,695.7	7,767.7	7,767.7	39.1	155.4	89.35	-5,457.4	214.9	3,764.2	3,571.1	193.01	19.503			
9,500.0	7,695.9	7,767.9	7,767.9	40.7	155.4	89.37	-5,457.4	214.9	3,664.9	3,470.2	194.73	18.821			
9,600.0	7,696.0	7,768.0	7,768.0	42.4	155.4	89.39	-5,457.4	214.9	3,565.7	3,369.3	196.47	18.149			
9,700.0	7,696.2	7,768.2	7,768.2	44.1	155.4	89.40	-5,457.4	214.9	3,466.6	3,268.4	198.22	17.489			
9,800.0	7,696.3	7,768.3	7,768.3	45.8	155.4	89.42	-5,457.4	214.9	3,367.5	3,167.5	199.98	16.839			
9,900.0	7,696.4	7,768.4	7,768.4	47.6	155.4	89.44	-5,457.4	214.9	3,268.5	3,066.7	201.76	16.200			
10,000.0	7,696.6	7,768.6	7,768.6	49.3	155.4	89.46	-5,457.4	214.9	3,169.5	2,966.0	203.55	15.571			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 8097-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
10,100.0	7,696.7	7,768.7	7,768.7	51.1	155.4	89.47	-5,457.4	214.9	3,070.6	2,865.3	205.35	14.953			
10,200.0	7,696.9	7,768.9	7,768.9	52.8	155.4	89.49	-5,457.4	214.9	2,971.8	2,764.6	207.16	14.345			
10,300.0	7,697.0	7,769.0	7,769.0	54.6	155.4	89.51	-5,457.4	214.9	2,873.0	2,664.0	208.97	13.748			
10,400.0	7,697.1	7,769.1	7,769.1	56.4	155.4	89.52	-5,457.4	214.9	2,774.4	2,563.6	210.80	13.161			
10,500.0	7,697.3	7,769.3	7,769.3	58.2	155.4	89.54	-5,457.4	214.9	2,675.8	2,463.2	212.62	12.585			
10,600.0	7,697.4	7,769.4	7,769.4	60.0	155.4	89.56	-5,457.4	214.9	2,577.3	2,362.9	214.46	12.018			
10,700.0	7,697.5	7,769.5	7,769.5	61.8	155.4	89.58	-5,457.4	214.9	2,479.0	2,262.7	216.30	11.461			
10,800.0	7,697.7	7,769.7	7,769.7	63.6	155.4	89.59	-5,457.4	214.9	2,380.8	2,162.7	218.14	10.914			
10,900.0	7,697.8	7,769.8	7,769.8	65.5	155.4	89.61	-5,457.4	214.9	2,282.8	2,062.8	219.99	10.377			
11,000.0	7,698.0	7,770.0	7,770.0	67.3	155.4	89.63	-5,457.4	214.9	2,185.0	1,963.1	221.84	9.849			
11,100.0	7,698.1	7,770.1	7,770.1	69.1	155.4	89.65	-5,457.4	214.9	2,087.3	1,863.6	223.70	9.331			
11,200.0	7,698.2	7,770.2	7,770.2	71.0	155.4	89.66	-5,457.4	214.9	1,989.9	1,764.3	225.56	8.822			
11,300.0	7,698.4	7,770.4	7,770.4	72.8	155.4	89.68	-5,457.4	214.9	1,892.7	1,665.3	227.42	8.323			
11,400.0	7,698.5	7,770.5	7,770.5	74.6	155.4	89.70	-5,457.4	214.9	1,795.9	1,566.6	229.29	7.833			
11,500.0	7,698.7	7,770.7	7,770.7	76.5	155.4	89.72	-5,457.4	214.9	1,699.4	1,468.3	231.16	7.352			
11,600.0	7,698.8	7,770.8	7,770.8	78.3	155.4	89.73	-5,457.4	214.9	1,603.4	1,370.4	233.03	6.881			
11,700.0	7,698.9	7,770.9	7,770.9	80.2	155.4	89.75	-5,457.4	214.9	1,507.9	1,273.0	234.90	6.419			
11,800.0	7,699.1	7,771.1	7,771.1	82.0	155.4	89.77	-5,457.4	214.9	1,413.0	1,176.2	236.77	5.968			
11,900.0	7,699.2	7,771.2	7,771.2	83.9	155.4	89.79	-5,457.4	214.9	1,318.9	1,080.2	238.65	5.526			
12,000.0	7,699.4	7,771.4	7,771.4	85.8	155.4	89.80	-5,457.4	214.9	1,225.7	985.1	240.53	5.096			
12,100.0	7,699.5	7,771.5	7,771.5	87.6	155.4	89.82	-5,457.4	214.9	1,133.6	891.2	242.41	4.676			
12,200.0	7,699.6	7,771.6	7,771.6	89.5	155.4	89.84	-5,457.4	214.9	1,043.0	798.7	244.29	4.270			
12,300.0	7,699.8	7,771.8	7,771.8	91.4	155.4	89.85	-5,457.4	214.9	954.3	708.1	246.18	3.877			
12,400.0	7,699.9	7,771.9	7,771.9	93.2	155.4	89.87	-5,457.4	214.9	868.1	620.0	248.06	3.499			
12,500.0	7,700.1	7,772.1	7,772.1	95.1	155.4	89.89	-5,457.4	214.9	785.1	535.1	249.95	3.141			
12,600.0	7,700.2	7,772.2	7,772.2	97.0	155.4	89.91	-5,457.4	214.9	706.5	454.7	251.83	2.805			
12,700.0	7,700.3	7,772.3	7,772.3	98.8	155.4	89.92	-5,457.4	214.9	634.0	380.3	253.72	2.499			
12,800.0	7,700.5	7,772.5	7,772.5	100.7	155.4	89.94	-5,457.4	214.9	569.9	314.3	255.61	2.230			
12,900.0	7,700.6	7,772.6	7,772.6	102.6	155.5	89.96	-5,457.4	214.9	517.3	259.8	257.50	2.009			
13,000.0	7,700.8	7,772.8	7,772.8	104.5	155.5	89.98	-5,457.4	214.9	480.0	220.6	259.40	1.851			
13,100.0	7,700.9	7,772.9	7,772.9	106.4	155.5	89.99	-5,457.4	214.9	461.8	200.5	261.29	1.767			
13,135.9	7,701.0	7,773.0	7,773.0	107.0	155.5	90.00	-5,457.4	214.9	460.4	198.4	261.97	1.757 CC, ES, SF			
13,200.0	7,701.0	7,773.0	7,773.0	108.2	155.5	90.01	-5,457.4	214.9	464.8	201.7	263.18	1.766			
13,300.0	7,701.2	7,773.2	7,773.2	110.1	155.5	90.03	-5,457.4	214.9	488.8	223.7	265.08	1.844			
13,400.0	7,701.3	7,773.3	7,773.3	112.0	155.5	90.05	-5,457.4	214.9	530.8	263.8	266.97	1.988			
13,500.0	7,701.5	7,773.5	7,773.5	113.9	155.5	90.06	-5,457.4	214.9	587.0	318.1	268.87	2.183			
13,600.0	7,701.6	7,773.6	7,773.6	115.8	155.5	90.08	-5,457.4	214.9	653.7	383.0	270.77	2.414			
13,700.0	7,701.7	7,773.7	7,773.7	117.7	155.5	90.10	-5,457.4	214.9	728.1	455.5	272.66	2.670			
13,800.0	7,701.9	7,773.9	7,773.9	119.6	155.5	90.12	-5,457.4	214.9	808.1	533.5	274.56	2.943			
13,900.0	7,702.0	7,774.0	7,774.0	121.4	155.5	90.13	-5,457.4	214.9	892.1	615.6	276.46	3.227			
14,000.0	7,702.2	7,774.2	7,774.2	123.3	155.5	90.15	-5,457.4	214.9	979.1	700.7	278.36	3.517			
14,100.0	7,702.3	7,774.3	7,774.3	125.2	155.5	90.17	-5,457.4	214.9	1,068.4	788.1	280.26	3.812			
14,200.0	7,702.4	7,774.4	7,774.4	127.1	155.5	90.18	-5,457.4	214.9	1,159.4	877.3	282.16	4.109			
14,300.0	7,702.6	7,774.6	7,774.6	129.0	155.5	90.20	-5,457.4	214.9	1,251.8	967.8	284.06	4.407			
14,400.0	7,702.7	7,774.7	7,774.7	130.9	155.5	90.22	-5,457.4	214.9	1,345.3	1,059.4	285.96	4.705			
14,500.0	7,702.9	7,774.9	7,774.9	132.8	155.5	90.24	-5,457.4	214.9	1,439.7	1,151.8	287.87	5.001			
14,600.0	7,703.0	7,775.0	7,775.0	134.7	155.5	90.25	-5,457.4	214.9	1,534.8	1,245.0	289.77	5.297			
14,603.6	7,703.0	7,775.0	7,775.0	134.7	155.5	90.26	-5,457.4	214.9	1,538.2	1,248.4	289.84	5.307			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	55.7	55.7	0.0	0.1	174.57	-4,331.4	411.9	4,350.9	4,350.9	0.07	N/A		
100.0	100.0	153.7	153.7	0.1	0.3	174.56	-4,331.5	412.3	4,351.0	4,350.7	0.39	N/A		
200.0	200.0	246.9	246.9	0.3	0.5	174.55	-4,331.5	413.1	4,351.2	4,350.3	0.86	5,064.453		
300.0	300.0	338.2	338.2	0.6	0.8	174.53	-4,331.8	414.8	4,351.6	4,350.3	1.33	3,281.010		
400.0	400.0	432.3	432.3	0.8	1.0	174.50	-4,332.0	417.5	4,352.1	4,350.3	1.80	2,416.404		
500.0	500.0	500.0	499.9	1.0	1.2	174.46	-4,332.2	419.9	4,352.9	4,350.7	2.21	1,973.564		
600.0	600.0	582.3	582.2	1.2	1.4	174.42	-4,333.0	423.6	4,354.3	4,351.7	2.65	1,643.925		
700.0	700.0	663.7	663.4	1.5	1.6	174.36	-4,334.2	427.8	4,356.3	4,353.2	3.09	1,410.434		
800.0	800.0	760.8	760.3	1.7	1.9	174.30	-4,335.9	432.9	4,358.6	4,355.0	3.57	1,221.271		
900.0	900.0	858.2	857.6	1.9	2.1	174.24	-4,337.7	437.3	4,360.9	4,356.8	4.05	1,076.982		
1,000.0	1,000.0	940.9	940.3	2.1	2.4	174.20	-4,339.4	440.9	4,363.3	4,358.8	4.49	971.698		
1,100.0	1,100.0	1,018.3	1,017.5	2.4	2.6	174.15	-4,341.3	444.6	4,366.3	4,361.4	4.92	887.893		
1,200.0	1,200.0	1,108.0	1,107.0	2.6	2.8	174.09	-4,343.9	449.6	4,369.7	4,364.3	5.38	812.570		
1,300.0	1,300.0	1,200.0	1,198.8	2.8	3.1	104.43	-4,346.5	455.0	4,373.7	4,367.8	5.85	747.207		
1,400.0	1,399.8	1,292.9	1,291.5	3.0	3.3	104.32	-4,349.4	460.7	4,378.7	4,372.3	6.31	693.603		
1,500.0	1,499.5	1,388.9	1,387.3	3.2	3.6	104.24	-4,352.5	466.8	4,384.7	4,377.9	6.79	645.601		
1,600.0	1,598.7	1,505.0	1,503.1	3.5	3.9	104.20	-4,356.1	474.0	4,391.5	4,384.1	7.34	598.275		
1,700.0	1,697.5	1,604.4	1,602.3	3.7	4.1	104.18	-4,359.0	479.6	4,398.9	4,391.0	7.87	559.074		
1,800.0	1,796.0	1,702.1	1,699.9	4.0	4.4	104.33	-4,361.9	484.9	4,406.8	4,398.4	8.42	523.493		
1,900.0	1,894.4	1,832.0	1,829.5	4.3	4.8	104.54	-4,365.4	491.3	4,414.3	4,405.2	9.07	486.753		
2,000.0	1,992.9	1,941.0	1,938.4	4.7	5.0	104.72	-4,367.9	496.0	4,421.4	4,411.8	9.68	456.927		
2,100.0	2,091.4	2,055.2	2,052.5	5.0	5.3	104.92	-4,370.3	500.1	4,428.4	4,418.1	10.31	429.675		
2,200.0	2,189.9	2,210.8	2,208.0	5.3	5.8	105.21	-4,372.5	504.2	4,434.6	4,423.6	11.05	401.209		
2,300.0	2,288.4	2,324.8	2,322.0	5.7	6.1	105.43	-4,373.1	506.3	4,440.0	4,428.3	11.70	379.585		
2,400.0	2,386.9	2,417.0	2,414.2	6.0	6.3	105.61	-4,373.5	507.8	4,445.3	4,433.0	12.29	361.749		
2,500.0	2,485.4	2,500.0	2,497.2	6.4	6.5	105.77	-4,374.3	509.4	4,451.1	4,438.2	12.86	346.122		
2,600.0	2,583.9	2,565.2	2,562.4	6.8	6.7	105.89	-4,375.2	510.7	4,457.4	4,444.1	13.39	333.014		
2,700.0	2,682.4	2,636.5	2,633.6	7.1	6.9	106.03	-4,376.6	512.1	4,464.4	4,450.4	13.92	320.637		
2,800.0	2,780.9	2,700.0	2,697.1	7.5	7.0	106.15	-4,378.3	513.2	4,472.1	4,457.6	14.44	309.693		
2,900.0	2,879.3	2,775.9	2,772.9	7.9	7.2	106.30	-4,380.8	514.2	4,480.4	4,465.4	14.97	299.281		
3,000.0	2,977.8	2,940.7	2,937.6	8.3	7.5	106.65	-4,386.1	514.5	4,488.8	4,473.2	15.63	287.273		
3,100.0	3,076.3	3,114.2	3,111.1	8.6	7.7	107.04	-4,388.2	513.0	4,494.9	4,478.8	16.16	278.231		
3,200.0	3,174.8	3,218.0	3,214.9	9.0	7.7	107.27	-4,388.7	512.0	4,500.6	4,484.0	16.58	271.477		
3,300.0	3,273.3	3,300.0	3,296.9	9.4	7.8	107.46	-4,389.2	511.0	4,506.4	4,489.4	16.99	265.241		
3,400.0	3,371.8	3,384.2	3,381.1	9.8	7.8	107.65	-4,390.0	509.6	4,512.6	4,495.1	17.42	259.010		
3,500.0	3,470.3	3,469.7	3,466.6	10.2	7.9	107.85	-4,391.2	508.1	4,519.2	4,501.3	17.87	252.871		
3,600.0	3,568.8	3,558.0	3,554.8	10.5	8.0	108.06	-4,392.6	506.4	4,526.1	4,507.8	18.33	246.859		
3,700.0	3,667.3	3,690.1	3,686.9	10.9	8.1	108.37	-4,394.5	503.4	4,533.1	4,514.3	18.83	240.694		
3,800.0	3,765.7	3,827.0	3,823.7	11.3	8.2	108.71	-4,395.2	498.8	4,539.0	4,519.8	19.29	235.313		
3,900.0	3,864.2	3,939.2	3,935.8	11.7	8.3	108.99	-4,395.1	495.0	4,544.6	4,524.9	19.72	230.414		
4,000.0	3,962.7	4,053.1	4,049.7	12.1	8.3	109.27	-4,394.7	491.8	4,549.9	4,529.7	20.16	225.701		
4,100.0	4,061.2	4,201.3	4,197.9	12.5	8.4	109.61	-4,393.2	489.0	4,554.7	4,534.1	20.61	221.033		
4,200.0	4,159.7	4,300.0	4,296.5	12.9	8.5	109.82	-4,391.2	488.1	4,558.6	4,537.5	21.03	216.728		
4,300.0	4,258.2	4,354.8	4,351.3	13.2	8.5	109.94	-4,390.3	487.6	4,563.1	4,541.6	21.46	212.603		
4,400.0	4,356.7	4,400.0	4,396.5	13.6	8.6	110.04	-4,390.3	487.2	4,569.0	4,547.1	21.88	208.787		
4,500.0	4,455.2	4,460.0	4,456.5	14.0	8.7	110.17	-4,390.8	486.5	4,575.9	4,553.6	22.35	204.718		
4,600.0	4,553.7	4,535.7	4,532.2	14.4	8.8	110.33	-4,392.0	485.5	4,583.6	4,560.7	22.85	200.599		
4,700.0	4,652.2	4,649.9	4,646.4	14.8	9.0	110.59	-4,394.0	483.3	4,591.5	4,568.1	23.40	196.178		
4,800.0	4,750.6	4,845.9	4,842.3	15.2	9.2	111.06	-4,394.4	477.4	4,597.9	4,573.9	24.01	191.521		
4,900.0	4,849.1	4,957.8	4,954.1	15.6	9.3	111.34	-4,393.4	473.4	4,603.4	4,578.9	24.49	187.960		
5,000.0	4,947.6	5,050.2	5,046.4	16.0	9.4	111.57	-4,392.4	469.8	4,608.8	4,583.8	24.96	184.633		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
5,100.0	5,046.1	5,125.0	5,121.2	16.4	9.5	111.75	-4,391.8	466.8	4,614.6	4,589.2	25.42	181.519			
5,200.0	5,144.6	5,200.0	5,196.1	16.8	9.6	111.94	-4,391.8	463.9	4,621.2	4,595.3	25.89	178.481			
5,300.0	5,243.1	5,400.0	5,396.0	17.2	9.9	112.41	-4,390.2	457.8	4,627.3	4,600.8	26.50	174.588			
5,400.0	5,341.6	5,463.8	5,459.8	17.5	10.0	112.59	-4,389.0	456.4	4,632.1	4,605.2	26.93	171.989			
5,500.0	5,440.6	5,533.8	5,529.8	17.8	10.0	112.80	-4,388.4	455.4	4,636.8	4,609.5	27.27	170.013			
5,600.0	5,540.0	5,600.0	5,595.9	18.0	10.1	112.96	-4,388.0	454.9	4,640.5	4,613.0	27.58	168.274			
5,700.0	5,639.7	5,671.7	5,667.6	18.2	10.2	113.08	-4,388.0	455.0	4,643.6	4,615.7	27.89	166.514			
5,800.0	5,739.7	5,744.4	5,740.3	18.4	10.4	113.15	-4,388.8	455.6	4,646.1	4,618.0	28.19	164.826			
5,900.0	5,839.6	5,871.4	5,867.3	18.5	10.7	-177.30	-4,390.4	456.6	4,647.6	4,619.0	28.59	162.540			
6,000.0	5,939.6	6,009.0	6,004.9	18.7	10.9	-177.29	-4,390.6	455.9	4,647.8	4,618.8	28.99	160.303			
6,085.8	6,025.5	6,090.7	6,086.6	18.8	11.0	-177.28	-4,390.5	455.1	4,647.7	4,618.4	29.25	158.880			
6,100.0	6,039.6	6,100.0	6,095.9	18.8	11.0	-177.28	-4,390.5	455.0	4,647.7	4,618.4	29.29	158.682			
6,200.0	6,139.6	6,185.5	6,181.4	19.0	11.2	-177.27	-4,390.6	454.0	4,647.9	4,618.3	29.60	157.049			
6,300.0	6,239.6	6,274.5	6,270.4	19.1	11.4	-177.26	-4,391.0	453.2	4,648.4	4,618.4	29.93	155.319			
6,400.0	6,339.6	6,383.5	6,379.4	19.3	11.6	-177.25	-4,391.6	452.7	4,648.9	4,618.6	30.32	153.325			
6,500.0	6,439.6	6,490.9	6,486.8	19.5	11.8	-177.25	-4,391.9	452.4	4,649.3	4,618.5	30.71	151.371			
6,600.0	6,539.6	6,606.0	6,601.9	19.6	12.0	-177.25	-4,392.0	452.1	4,649.3	4,618.3	31.09	149.541			
6,638.8	6,578.4	6,641.8	6,637.7	19.7	12.1	-177.25	-4,392.0	452.0	4,649.3	4,618.1	31.22	148.931			
6,700.0	6,639.6	6,700.0	6,695.9	19.8	12.2	-177.24	-4,392.0	451.8	4,649.4	4,617.9	31.42	147.966			
6,800.0	6,739.6	6,782.2	6,778.1	19.9	12.4	-177.24	-4,392.2	451.7	4,649.6	4,617.9	31.76	146.406			
6,900.0	6,839.6	6,884.0	6,879.9	20.1	12.6	-177.25	-4,392.7	452.0	4,650.1	4,618.0	32.14	144.691			
7,000.0	6,939.6	6,976.8	6,972.7	20.3	12.8	2.75	-4,393.1	452.4	4,650.5	4,618.0	32.49	143.146			
7,100.0	7,039.3	7,086.2	7,082.1	20.4	13.0	2.77	-4,393.7	453.1	4,643.2	4,610.7	32.51	142.825			
7,200.0	7,137.0	7,243.2	7,239.1	20.4	13.2	2.85	-4,393.5	454.3	4,622.4	4,590.3	32.06	144.160			
7,300.0	7,231.2	7,363.2	7,359.1	20.5	13.4	3.03	-4,391.8	454.1	4,587.7	4,556.7	31.04	147.801			
7,400.0	7,320.3	7,500.0	7,495.8	20.5	13.6	3.34	-4,388.6	451.2	4,540.5	4,510.9	29.60	153.403			
7,500.0	7,402.7	7,535.5	7,531.3	20.5	13.6	3.71	-4,387.7	450.2	4,482.2	4,454.5	27.68	161.943			
7,600.0	7,477.0	7,557.2	7,553.0	20.5	13.7	4.21	-4,387.5	449.8	4,414.7	4,389.3	25.44	173.557			
7,700.0	7,541.9	7,600.0	7,595.8	20.6	13.7	4.97	-4,387.7	449.2	4,339.2	4,316.1	23.03	188.388			
7,800.0	7,596.4	7,600.0	7,595.8	20.7	13.7	6.06	-4,387.7	449.2	4,255.9	4,235.4	20.54	207.167			
7,900.0	7,639.5	7,600.0	7,595.8	21.0	13.7	7.86	-4,387.7	449.2	4,166.7	4,148.5	18.26	228.131			
8,000.0	7,670.4	7,600.0	7,595.8	21.4	13.7	11.29	-4,387.7	449.2	4,072.8	4,056.1	16.64	244.698			
8,100.0	7,688.7	7,633.9	7,629.6	21.9	13.8	21.11	-4,388.6	449.1	3,975.1	3,957.6	17.42	228.230			
8,200.0	7,694.1	7,637.6	7,633.4	22.7	13.8	61.06	-4,388.7	449.1	3,875.7	3,846.1	29.50	131.370			
8,300.0	7,694.2	7,639.1	7,634.9	23.6	13.8	61.35	-4,388.7	449.2	3,775.9	3,745.4	30.51	123.769			
8,400.0	7,694.3	7,640.7	7,636.4	24.7	13.8	61.65	-4,388.8	449.2	3,676.1	3,644.5	31.63	116.225			
8,500.0	7,694.5	7,642.3	7,638.0	25.8	13.8	61.97	-4,388.8	449.2	3,576.4	3,543.5	32.85	108.864			
8,600.0	7,694.6	7,644.0	7,639.7	27.1	13.8	62.29	-4,388.9	449.2	3,476.6	3,442.5	34.16	101.772			
8,700.0	7,694.8	7,645.7	7,641.4	28.4	13.8	62.63	-4,388.9	449.2	3,376.9	3,341.4	35.55	95.003			
8,800.0	7,694.9	7,647.4	7,643.2	29.8	13.8	62.98	-4,389.0	449.2	3,277.2	3,240.2	37.00	88.584			
8,900.0	7,695.0	7,649.3	7,645.0	31.2	13.8	63.35	-4,389.1	449.3	3,177.5	3,139.0	38.50	82.526			
9,000.0	7,695.2	7,651.2	7,646.9	32.7	13.8	63.73	-4,389.1	449.3	3,077.8	3,037.8	40.06	76.826			
9,100.0	7,695.3	7,653.1	7,648.9	34.3	13.8	64.13	-4,389.2	449.3	2,978.2	2,936.5	41.67	71.475			
9,200.0	7,695.5	7,655.1	7,650.9	35.8	13.8	64.54	-4,389.3	449.3	2,878.6	2,835.2	43.31	66.457			
9,300.0	7,695.6	7,657.2	7,653.0	37.5	13.9	64.98	-4,389.4	449.4	2,778.9	2,733.9	45.00	61.754			
9,400.0	7,695.7	7,659.4	7,655.2	39.1	13.9	65.43	-4,389.5	449.4	2,679.4	2,632.6	46.72	57.347			
9,500.0	7,695.9	7,661.7	7,657.4	40.7	13.9	65.90	-4,389.5	449.5	2,579.8	2,531.3	48.48	53.218			
9,600.0	7,696.0	7,664.1	7,659.8	42.4	13.9	66.40	-4,389.6	449.5	2,480.3	2,430.0	50.26	49.346			
9,700.0	7,696.2	7,666.5	7,662.2	44.1	13.9	66.92	-4,389.7	449.6	2,380.8	2,328.7	52.08	45.714			
9,800.0	7,696.3	7,669.1	7,664.8	45.8	13.9	67.46	-4,389.8	449.6	2,281.3	2,227.4	53.93	42.304			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
9,900.0	7,696.4	7,671.7	7,667.4	47.6	13.9	68.03	-4,390.0	449.7	2,181.9	2,126.1	55.80	39.101			
10,000.0	7,696.6	7,674.5	7,670.2	49.3	13.9	68.63	-4,390.1	449.7	2,082.6	2,024.9	57.71	36.090			
10,100.0	7,696.7	7,677.4	7,673.1	51.1	13.9	69.26	-4,390.2	449.8	1,983.3	1,923.7	59.64	33.257			
10,200.0	7,696.9	7,680.4	7,676.1	52.8	13.9	69.93	-4,390.3	449.9	1,884.1	1,822.5	61.59	30.589			
10,300.0	7,697.0	7,700.0	7,695.7	54.6	13.9	74.40	-4,391.3	450.5	1,785.1	1,720.2	64.86	27.521			
10,400.0	7,697.1	7,700.0	7,695.7	56.4	13.9	74.40	-4,391.3	450.5	1,686.0	1,619.3	66.62	25.306			
10,500.0	7,697.3	7,700.0	7,695.7	58.2	13.9	74.40	-4,391.3	450.5	1,587.0	1,518.6	68.39	23.204			
10,600.0	7,697.4	7,700.0	7,695.7	60.0	13.9	74.40	-4,391.3	450.5	1,488.1	1,418.0	70.17	21.209			
10,700.0	7,697.5	7,700.0	7,695.7	61.8	13.9	74.40	-4,391.3	450.5	1,389.5	1,317.5	71.95	19.313			
10,800.0	7,697.7	7,702.7	7,698.3	63.6	14.0	75.02	-4,391.4	450.6	1,291.0	1,217.1	73.94	17.459			
10,900.0	7,697.8	7,708.9	7,704.5	65.5	14.0	76.49	-4,391.8	450.8	1,192.8	1,116.5	76.22	15.649			
11,000.0	7,698.0	7,714.9	7,710.5	67.3	14.0	77.93	-4,392.1	451.0	1,094.8	1,016.3	78.47	13.952			
11,100.0	7,698.1	7,720.7	7,716.3	69.1	14.0	79.35	-4,392.4	451.2	997.2	916.5	80.69	12.359			
11,200.0	7,698.2	7,726.3	7,721.9	71.0	14.0	80.73	-4,392.6	451.4	900.2	817.3	82.88	10.861			
11,300.0	7,698.4	7,731.7	7,727.4	72.8	14.0	82.08	-4,392.9	451.6	803.8	718.7	85.04	9.452			
11,400.0	7,698.5	7,737.0	7,732.6	74.6	14.0	83.41	-4,393.1	451.7	708.3	621.2	87.16	8.127			
11,500.0	7,698.7	7,742.1	7,737.7	76.5	14.0	84.70	-4,393.4	451.9	614.3	525.1	89.25	6.883			
11,600.0	7,698.8	7,747.1	7,742.7	78.3	14.0	85.96	-4,393.6	452.0	522.5	431.2	91.31	5.722			
11,700.0	7,698.9	7,751.9	7,747.5	80.2	14.1	87.19	-4,393.8	452.2	434.2	340.9	93.34	4.652			
11,800.0	7,699.1	7,756.6	7,752.2	82.0	14.1	88.38	-4,394.0	452.3	352.2	256.9	95.33	3.695			
11,900.0	7,699.2	7,761.1	7,756.7	83.9	14.1	89.55	-4,394.2	452.4	282.0	184.7	97.29	2.899			
12,000.0	7,699.4	7,765.6	7,761.1	85.8	14.1	90.68	-4,394.4	452.5	234.4	135.2	99.21	2.363			
12,073.1	7,699.5	7,768.7	7,764.3	87.1	14.1	91.49	-4,394.6	452.6	222.8	122.2	100.60	2.214 CC, ES, SF			
12,100.0	7,699.5	7,769.8	7,765.4	87.6	14.1	91.79	-4,394.6	452.7	224.4	123.3	101.10	2.219			
12,200.0	7,699.6	7,774.0	7,769.6	89.5	14.1	92.86	-4,394.8	452.8	256.3	153.4	102.97	2.489			
12,300.0	7,699.8	7,778.1	7,773.6	91.4	14.1	93.90	-4,395.0	452.9	317.8	213.0	104.80	3.033			
12,400.0	7,699.9	7,782.0	7,777.6	93.2	14.1	94.92	-4,395.1	453.0	395.3	288.7	106.60	3.709			
12,500.0	7,700.1	7,785.9	7,781.4	95.1	14.1	95.90	-4,395.3	453.1	481.2	372.8	108.37	4.440			
12,600.0	7,700.2	7,789.6	7,785.2	97.0	14.1	96.86	-4,395.4	453.1	571.6	461.5	110.12	5.191			
12,700.0	7,700.3	7,793.3	7,788.8	98.8	14.1	97.79	-4,395.6	453.2	664.8	553.0	111.84	5.944			
12,800.0	7,700.5	7,800.0	7,795.5	100.7	14.2	99.48	-4,395.8	453.4	759.7	646.3	113.36	6.702			
12,900.0	7,700.6	7,800.0	7,795.5	102.6	14.2	99.48	-4,395.8	453.4	855.7	740.5	115.22	7.427			
13,000.0	7,700.8	7,800.0	7,795.5	104.5	14.2	99.48	-4,395.8	453.4	952.6	835.5	117.09	8.135			
13,100.0	7,700.9	7,800.0	7,795.5	106.4	14.2	99.48	-4,395.8	453.4	1,050.0	931.0	118.96	8.827			
13,200.0	7,701.0	7,800.0	7,795.5	108.2	14.2	99.48	-4,395.8	453.4	1,147.9	1,027.0	120.82	9.500			
13,300.0	7,701.2	7,800.0	7,795.5	110.1	14.2	99.48	-4,395.8	453.4	1,246.1	1,123.4	122.69	10.156			
13,400.0	7,701.3	7,814.6	7,810.1	112.0	14.2	103.12	-4,396.4	453.7	1,344.5	1,221.0	123.41	10.894			
13,500.0	7,701.5	7,817.2	7,812.7	113.9	14.2	103.75	-4,396.5	453.7	1,443.1	1,318.1	125.01	11.544			
13,600.0	7,701.6	7,819.6	7,815.1	115.8	14.2	104.35	-4,396.5	453.8	1,541.9	1,415.3	126.61	12.179			
13,700.0	7,701.7	7,822.0	7,817.5	117.7	14.2	104.92	-4,396.6	453.8	1,640.9	1,512.7	128.20	12.800			
13,800.0	7,701.9	7,824.3	7,819.8	119.6	14.2	105.48	-4,396.7	453.8	1,740.0	1,610.2	129.78	13.407			
13,900.0	7,702.0	7,826.5	7,822.0	121.4	14.2	106.01	-4,396.8	453.9	1,839.1	1,707.8	131.35	14.002			
14,000.0	7,702.2	7,828.6	7,824.2	123.3	14.2	106.52	-4,396.8	453.9	1,938.4	1,805.5	132.92	14.583			
14,100.0	7,702.3	7,830.7	7,826.2	125.2	14.2	107.02	-4,396.9	453.9	2,037.7	1,903.2	134.48	15.153			
14,200.0	7,702.4	7,832.7	7,828.2	127.1	14.2	107.49	-4,396.9	454.0	2,137.1	2,001.0	136.03	15.710			
14,300.0	7,702.6	7,834.7	7,830.2	129.0	14.2	107.95	-4,397.0	454.0	2,236.5	2,098.9	137.58	16.256			
14,400.0	7,702.7	7,836.5	7,832.0	130.9	14.2	108.39	-4,397.1	454.0	2,336.0	2,196.9	139.13	16.790			
14,500.0	7,702.9	7,838.4	7,833.9	132.8	14.2	108.82	-4,397.1	454.1	2,435.5	2,294.8	140.67	17.314			
14,600.0	7,703.0	7,840.1	7,835.6	134.7	14.2	109.23	-4,397.2	454.1	2,535.1	2,392.9	142.21	17.826			
14,603.6	7,703.0	7,840.2	7,835.7	134.7	14.2	109.24	-4,397.2	454.1	2,538.6	2,396.4	142.26	17.845			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	90.4	90.4	0.0	0.1	172.48	-6,174.6	815.3	6,228.2	6,228.1	0.12	N/A		
100.0	100.0	195.0	195.0	0.1	0.4	172.48	-6,174.4	814.8	6,227.9	6,227.4	0.50	N/A		
200.0	200.0	282.9	282.9	0.3	0.6	172.49	-6,174.3	814.2	6,227.7	6,226.8	0.95	6,577.345		
274.8	274.8	351.8	351.8	0.5	0.8	172.49	-6,174.3	813.7	6,227.7	6,226.4	1.29	4,828.282		
300.0	300.0	375.5	375.5	0.6	0.8	172.49	-6,174.3	813.5	6,227.7	6,226.3	1.41	4,428.849		
400.0	400.0	486.0	486.0	0.8	1.1	172.50	-6,174.4	813.0	6,227.7	6,225.7	1.92	3,251.422		
500.0	500.0	613.6	613.6	1.0	1.4	172.50	-6,173.9	812.6	6,227.3	6,224.8	2.45	2,542.588		
600.0	600.0	707.5	707.5	1.2	1.7	172.51	-6,173.5	812.0	6,226.7	6,223.8	2.90	2,144.361		
700.0	700.0	800.0	800.0	1.5	1.9	172.51	-6,173.2	811.4	6,226.3	6,223.0	3.37	1,845.970		
800.0	800.0	902.3	902.3	1.7	2.2	172.52	-6,172.9	810.9	6,226.0	6,222.1	3.86	1,612.006		
900.0	900.0	1,008.4	1,008.4	1.9	2.4	172.52	-6,172.5	810.5	6,225.5	6,221.2	4.36	1,428.024		
1,000.0	1,000.0	1,111.7	1,111.7	2.1	2.7	172.53	-6,172.0	809.7	6,224.9	6,220.1	4.85	1,282.306		
1,100.0	1,100.0	1,200.0	1,200.0	2.4	2.9	172.53	-6,171.7	808.9	6,224.6	6,219.3	5.31	1,172.656		
1,200.0	1,200.0	1,291.0	1,291.0	2.6	3.2	172.54	-6,171.7	808.2	6,224.4	6,218.6	5.77	1,079.014		
1,259.6	1,259.6	1,365.8	1,365.7	2.7	3.4	103.02	-6,171.5	807.7	6,224.3	6,218.2	6.09	1,021.241		
1,300.0	1,300.0	1,411.6	1,411.6	2.8	3.5	103.03	-6,171.3	807.3	6,224.4	6,218.0	6.30	987.500		
1,400.0	1,399.8	1,500.0	1,500.0	3.0	3.7	103.06	-6,171.0	806.5	6,225.1	6,218.4	6.75	922.604		
1,500.0	1,499.5	1,577.6	1,577.6	3.2	3.9	103.10	-6,171.0	805.7	6,226.9	6,219.8	7.16	869.140		
1,600.0	1,598.7	1,692.1	1,692.0	3.5	4.2	103.18	-6,171.0	805.0	6,229.6	6,222.0	7.69	809.756		
1,700.0	1,697.5	1,791.3	1,791.2	3.7	4.5	103.26	-6,170.8	804.1	6,233.0	6,224.8	8.22	758.475		
1,800.0	1,796.0	1,872.4	1,872.4	4.0	4.7	103.39	-6,170.8	803.3	6,236.9	6,228.2	8.71	715.794		
1,900.0	1,894.4	1,982.4	1,982.4	4.3	5.0	103.57	-6,170.9	802.4	6,241.0	6,231.7	9.30	671.223		
2,000.0	1,992.9	2,090.6	2,090.5	4.7	5.2	103.75	-6,170.7	801.6	6,244.9	6,235.0	9.90	630.733		
2,100.0	2,091.4	2,174.5	2,174.4	5.0	5.5	103.88	-6,170.6	800.7	6,248.8	6,238.4	10.45	598.073		
2,200.0	2,189.9	2,309.8	2,309.8	5.3	5.8	104.10	-6,170.3	799.8	6,252.8	6,241.7	11.13	561.991		
2,300.0	2,288.4	2,425.3	2,425.2	5.7	6.1	104.28	-6,169.4	799.1	6,256.2	6,244.5	11.74	532.718		
2,400.0	2,386.9	2,539.3	2,539.3	6.0	6.3	104.46	-6,168.3	798.7	6,259.6	6,247.2	12.33	507.793		
2,500.0	2,485.4	2,650.4	2,650.3	6.4	6.5	104.63	-6,166.7	798.5	6,262.5	6,249.6	12.90	485.485		
2,600.0	2,583.9	2,738.0	2,737.9	6.8	6.7	104.77	-6,165.6	798.1	6,265.7	6,252.2	13.45	466.016		
2,700.0	2,682.4	2,837.4	2,837.3	7.1	6.9	104.92	-6,164.5	797.7	6,269.0	6,255.0	14.03	446.981		
2,800.0	2,780.9	2,949.9	2,949.8	7.5	7.2	105.10	-6,162.9	797.3	6,272.1	6,257.5	14.64	428.514		
2,900.0	2,879.3	3,036.3	3,036.2	7.9	7.4	105.23	-6,161.7	796.8	6,275.3	6,260.0	15.20	412.800		
3,000.0	2,977.8	3,114.7	3,114.6	8.3	7.6	105.35	-6,160.9	796.4	6,278.8	6,263.0	15.75	398.708		
3,100.0	3,076.3	3,213.2	3,213.1	8.6	7.8	105.50	-6,160.0	796.5	6,282.5	6,266.2	16.31	385.259		
3,200.0	3,174.8	3,316.4	3,316.3	9.0	7.9	105.66	-6,158.9	796.6	6,286.2	6,269.3	16.87	372.675		
3,300.0	3,273.3	3,400.0	3,399.9	9.4	8.1	105.78	-6,158.2	796.7	6,290.0	6,272.6	17.40	361.476		
3,400.0	3,371.8	3,503.7	3,503.5	9.8	8.3	105.94	-6,157.3	797.1	6,294.0	6,276.1	17.94	350.793		
3,500.0	3,470.3	3,638.0	3,637.8	10.2	8.5	106.14	-6,155.6	797.3	6,297.6	6,279.0	18.57	339.134		
3,600.0	3,568.8	3,727.2	3,727.0	10.5	8.7	106.27	-6,154.4	797.1	6,301.1	6,281.9	19.15	329.114		
3,700.0	3,667.3	3,812.6	3,812.4	10.9	8.9	106.40	-6,153.3	797.0	6,304.8	6,285.1	19.72	319.725		
3,800.0	3,765.7	3,900.0	3,899.8	11.3	9.1	106.54	-6,152.6	796.8	6,308.8	6,288.5	20.30	310.726		
3,900.0	3,864.2	3,964.1	3,963.9	11.7	9.3	106.63	-6,152.2	796.6	6,313.3	6,292.4	20.84	302.958		
4,000.0	3,962.7	4,052.3	4,052.2	12.1	9.5	106.77	-6,152.1	796.1	6,318.1	6,296.7	21.43	294.777		
4,100.0	4,061.2	4,154.0	4,153.8	12.5	9.8	106.93	-6,151.9	795.4	6,323.0	6,300.9	22.06	286.604		
4,200.0	4,159.7	4,248.8	4,248.7	12.9	10.0	107.08	-6,151.7	794.5	6,327.9	6,305.2	22.67	279.128		
4,300.0	4,258.2	4,352.1	4,351.9	13.2	10.3	107.25	-6,151.6	793.4	6,332.9	6,309.6	23.30	271.819		
4,400.0	4,356.7	4,478.9	4,478.7	13.6	10.6	107.45	-6,151.1	792.1	6,337.6	6,313.6	24.00	264.108		
4,500.0	4,455.2	4,568.7	4,568.4	14.0	10.8	107.59	-6,150.5	791.0	6,342.2	6,317.6	24.60	257.762		
4,600.0	4,553.7	4,656.3	4,656.1	14.4	11.0	107.73	-6,150.1	789.7	6,347.1	6,321.9	25.20	251.825		
4,700.0	4,652.2	4,753.6	4,753.4	14.8	11.3	107.89	-6,149.8	788.6	6,352.1	6,326.2	25.83	245.936		
4,800.0	4,750.6	4,848.8	4,848.5	15.2	11.5	108.04	-6,149.5	787.8	6,357.1	6,330.6	26.45	240.352		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
4,900.0	4,849.1	4,939.7	4,939.4	15.6	11.8	108.18	-6,149.3	787.0	6,362.3	6,335.2	27.06	235.145			
5,000.0	4,947.6	5,027.9	5,027.6	16.0	12.0	108.32	-6,149.2	786.1	6,367.6	6,340.0	27.65	230.310			
5,100.0	5,046.1	5,108.9	5,108.7	16.4	12.2	108.44	-6,149.3	785.3	6,373.3	6,345.1	28.21	225.918			
5,200.0	5,144.6	5,224.3	5,224.0	16.8	12.4	108.62	-6,149.4	784.1	6,378.9	6,350.1	28.85	221.108			
5,300.0	5,243.1	5,319.6	5,319.3	17.2	12.7	108.78	-6,149.4	782.9	6,384.5	6,355.0	29.45	216.769			
5,400.0	5,341.6	5,400.0	5,399.7	17.5	12.8	108.94	-6,149.6	781.7	6,390.3	6,360.3	29.99	213.053			
5,500.0	5,440.6	5,473.6	5,473.4	17.8	13.0	109.14	-6,150.1	780.5	6,395.6	6,365.1	30.40	210.355			
5,600.0	5,540.0	5,563.6	5,563.3	18.0	13.2	109.32	-6,150.8	779.1	6,399.9	6,369.1	30.81	207.750			
5,700.0	5,639.7	5,660.6	5,660.3	18.2	13.4	109.46	-6,151.7	777.5	6,403.2	6,372.0	31.19	205.321			
5,800.0	5,739.7	5,750.1	5,749.8	18.4	13.5	109.54	-6,152.5	776.0	6,405.5	6,373.9	31.52	203.250			
5,900.0	5,839.6	5,851.7	5,851.4	18.5	13.7	179.11	-6,153.7	774.5	6,406.8	6,374.9	31.84	201.224			
6,000.0	5,939.6	5,979.6	5,979.2	18.7	14.0	179.13	-6,154.7	772.7	6,407.6	6,375.3	32.25	198.699			
6,100.0	6,039.6	6,071.0	6,070.6	18.8	14.2	179.14	-6,155.3	771.3	6,408.2	6,375.6	32.60	196.573			
6,200.0	6,139.6	6,173.1	6,172.7	19.0	14.4	179.16	-6,156.1	769.6	6,408.9	6,376.0	32.98	194.347			
6,300.0	6,239.6	6,320.1	6,319.7	19.1	14.7	179.18	-6,156.6	767.5	6,409.2	6,375.8	33.48	191.445			
6,400.0	6,339.6	6,425.1	6,424.6	19.3	15.0	179.19	-6,156.6	765.6	6,409.2	6,375.3	33.90	189.043			
6,500.0	6,439.6	6,570.3	6,569.9	19.5	15.4	179.22	-6,155.9	762.5	6,408.7	6,374.3	34.44	186.081			
6,600.0	6,539.6	6,635.2	6,634.5	19.6	16.1	179.30	-6,150.3	753.2	6,406.4	6,371.1	35.29	181.515			
6,700.0	6,639.6	6,735.9	6,735.1	19.8	16.4	179.35	-6,145.9	748.1	6,402.7	6,366.9	35.75	179.077			
6,800.0	6,739.6	7,025.0	7,024.1	19.9	16.5	179.36	-6,143.4	747.0	6,399.2	6,363.1	36.07	177.402			
6,900.0	6,839.6	7,100.0	7,099.0	20.1	16.7	179.36	-6,141.3	747.2	6,396.3	6,360.0	36.37	175.884			
7,000.0	6,939.6	7,137.4	7,136.4	20.3	16.7	-0.65	-6,140.5	747.7	6,394.0	6,357.5	36.56	174.906			
7,100.0	7,039.3	7,200.0	7,199.0	20.4	16.7	-0.67	-6,139.6	748.8	6,384.7	6,348.4	36.34	175.695			
7,200.0	7,137.0	7,252.0	7,251.0	20.4	16.8	-0.70	-6,139.1	749.7	6,363.1	6,327.6	35.53	179.110			
7,300.0	7,231.2	7,300.0	7,299.0	20.5	16.8	-0.74	-6,139.0	750.6	6,329.6	6,295.4	34.18	185.193			
7,400.0	7,320.3	7,379.6	7,378.6	20.5	16.8	-0.81	-6,139.0	751.9	6,284.4	6,252.0	32.34	194.350			
7,500.0	7,402.7	7,454.2	7,453.2	20.5	16.8	-0.91	-6,139.3	753.2	6,228.1	6,198.1	30.06	207.162			
7,600.0	7,477.0	7,532.2	7,531.1	20.5	16.8	-1.05	-6,139.6	754.7	6,161.6	6,134.2	27.45	224.435			
7,700.0	7,541.9	7,607.2	7,606.1	20.6	16.8	-1.27	-6,139.8	756.3	6,085.9	6,061.3	24.62	247.189			
7,800.0	7,596.4	7,663.3	7,662.2	20.7	16.8	-1.60	-6,139.9	757.5	6,002.2	5,980.5	21.72	276.399			
7,900.0	7,639.5	7,707.1	7,706.0	21.0	16.9	-2.16	-6,140.0	758.4	5,912.1	5,893.2	18.97	311.665			
8,000.0	7,670.4	7,737.1	7,736.0	21.4	16.9	-3.31	-6,140.0	758.9	5,817.2	5,800.4	16.75	347.385			
8,100.0	7,688.7	7,754.8	7,753.7	21.9	16.9	-6.96	-6,140.1	759.3	5,719.0	5,703.1	15.92	359.287			
8,200.0	7,694.1	7,760.2	7,759.1	22.7	16.9	-76.71	-6,140.1	759.4	5,619.2	5,582.6	36.64	153.346			
8,300.0	7,694.2	7,760.5	7,759.4	23.6	16.9	-76.91	-6,140.1	759.4	5,519.2	5,481.5	37.72	146.320			
8,400.0	7,694.3	7,760.8	7,759.7	24.7	16.9	-77.12	-6,140.1	759.4	5,419.2	5,380.3	38.90	139.297			
8,500.0	7,694.5	7,761.1	7,760.0	25.8	16.9	-77.32	-6,140.1	759.4	5,319.3	5,279.1	40.18	132.385			
8,600.0	7,694.6	7,761.4	7,760.3	27.1	16.9	-77.53	-6,140.1	759.4	5,219.3	5,177.7	41.53	125.660			
8,700.0	7,694.8	7,761.7	7,760.6	28.4	16.9	-77.74	-6,140.1	759.4	5,119.3	5,076.3	42.96	119.174			
8,800.0	7,694.9	7,762.1	7,760.9	29.8	16.9	-77.95	-6,140.1	759.4	5,019.3	4,974.9	44.44	112.956			
8,900.0	7,695.0	7,762.4	7,761.3	31.2	16.9	-78.15	-6,140.1	759.4	4,919.3	4,873.3	45.96	107.025			
9,000.0	7,695.2	7,762.7	7,761.6	32.7	16.9	-78.36	-6,140.1	759.4	4,819.3	4,771.8	47.53	101.385			
9,100.0	7,695.3	7,763.0	7,761.9	34.3	16.9	-78.57	-6,140.1	759.4	4,719.3	4,670.2	49.14	96.034			
9,200.0	7,695.5	7,763.3	7,762.2	35.8	16.9	-78.78	-6,140.1	759.4	4,619.4	4,568.6	50.78	90.966			
9,300.0	7,695.6	7,763.6	7,762.5	37.5	16.9	-78.99	-6,140.1	759.4	4,519.4	4,466.9	52.45	86.169			
9,400.0	7,695.7	7,764.0	7,762.9	39.1	16.9	-79.20	-6,140.1	759.4	4,419.4	4,365.3	54.14	81.630			
9,500.0	7,695.9	7,764.3	7,763.2	40.7	16.9	-79.41	-6,140.1	759.4	4,319.4	4,263.6	55.85	77.338			
9,600.0	7,696.0	7,764.6	7,763.5	42.4	16.9	-79.62	-6,140.1	759.4	4,219.4	4,161.9	57.58	73.276			
9,700.0	7,696.2	7,764.9	7,763.8	44.1	16.9	-79.84	-6,140.1	759.4	4,119.5	4,060.1	59.33	69.432			
9,800.0	7,696.3	7,765.3	7,764.1	45.8	16.9	-80.05	-6,140.1	759.4	4,019.5	3,958.4	61.09	65.792			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
9,900.0	7,696.4	7,765.6	7,764.5	47.6	16.9	-80.26	-6,140.1	759.5	3,919.5	3,856.6	62.87	62.343			
10,000.0	7,696.6	7,765.9	7,764.8	49.3	16.9	-80.48	-6,140.1	759.5	3,819.5	3,754.9	64.66	59.072			
10,100.0	7,696.7	7,766.2	7,765.1	51.1	16.9	-80.69	-6,140.1	759.5	3,719.6	3,653.1	66.46	55.969			
10,200.0	7,696.9	7,766.5	7,765.4	52.8	16.9	-80.91	-6,140.1	759.5	3,619.6	3,551.3	68.27	53.021			
10,300.0	7,697.0	7,766.9	7,765.8	54.6	16.9	-81.12	-6,140.1	759.5	3,519.6	3,449.5	70.08	50.219			
10,400.0	7,697.1	7,767.2	7,766.1	56.4	16.9	-81.34	-6,140.1	759.5	3,419.6	3,347.7	71.91	47.554			
10,500.0	7,697.3	7,767.5	7,766.4	58.2	16.9	-81.55	-6,140.1	759.5	3,319.7	3,245.9	73.74	45.016			
10,600.0	7,697.4	7,767.8	7,766.7	60.0	16.9	-81.77	-6,140.1	759.5	3,219.7	3,144.1	75.58	42.598			
10,700.0	7,697.5	7,768.2	7,767.1	61.8	16.9	-81.99	-6,140.1	759.5	3,119.7	3,042.3	77.43	40.291			
10,800.0	7,697.7	7,768.5	7,767.4	63.6	16.9	-82.21	-6,140.1	759.5	3,019.8	2,940.5	79.28	38.089			
10,900.0	7,697.8	7,768.8	7,767.7	65.5	16.9	-82.43	-6,140.1	759.5	2,919.8	2,838.7	81.14	35.985			
11,000.0	7,698.0	7,769.1	7,768.0	67.3	16.9	-82.64	-6,140.1	759.5	2,819.9	2,736.9	83.00	33.974			
11,100.0	7,698.1	7,769.5	7,768.4	69.1	16.9	-82.86	-6,140.1	759.5	2,719.9	2,635.0	84.87	32.049			
11,200.0	7,698.2	7,769.8	7,768.7	71.0	16.9	-83.08	-6,140.1	759.5	2,620.0	2,533.2	86.74	30.206			
11,300.0	7,698.4	7,770.1	7,769.0	72.8	16.9	-83.30	-6,140.1	759.5	2,520.0	2,431.4	88.61	28.439			
11,400.0	7,698.5	7,770.5	7,769.3	74.6	16.9	-83.53	-6,140.1	759.5	2,420.1	2,329.6	90.49	26.745			
11,500.0	7,698.7	7,770.8	7,769.7	76.5	16.9	-83.75	-6,140.1	759.5	2,320.1	2,227.8	92.37	25.119			
11,600.0	7,698.8	7,771.1	7,770.0	78.3	16.9	-83.97	-6,140.1	759.6	2,220.2	2,126.0	94.25	23.557			
11,700.0	7,698.9	7,771.4	7,770.3	80.2	16.9	-84.19	-6,140.1	759.6	2,120.3	2,024.1	96.13	22.055			
11,800.0	7,699.1	7,771.8	7,770.7	82.0	16.9	-84.41	-6,140.1	759.6	2,020.4	1,922.3	98.02	20.611			
11,900.0	7,699.2	7,772.1	7,771.0	83.9	16.9	-84.64	-6,140.1	759.6	1,920.5	1,820.5	99.91	19.222			
12,000.0	7,699.4	7,772.4	7,771.3	85.8	16.9	-84.86	-6,140.1	759.6	1,820.6	1,718.8	101.80	17.883			
12,100.0	7,699.5	7,772.8	7,771.7	87.6	16.9	-85.08	-6,140.1	759.6	1,720.7	1,617.0	103.69	16.594			
12,200.0	7,699.6	7,773.1	7,772.0	89.5	16.9	-85.31	-6,140.1	759.6	1,620.8	1,515.2	105.59	15.350			
12,300.0	7,699.8	7,773.4	7,772.3	91.4	16.9	-85.53	-6,140.1	759.6	1,521.0	1,413.5	107.48	14.150			
12,400.0	7,699.9	7,773.8	7,772.7	93.2	16.9	-85.76	-6,140.1	759.6	1,421.1	1,311.7	109.38	12.992			
12,500.0	7,700.1	7,774.1	7,773.0	95.1	16.9	-85.99	-6,140.1	759.6	1,321.3	1,210.0	111.28	11.874			
12,600.0	7,700.2	7,774.4	7,773.3	97.0	16.9	-86.21	-6,140.1	759.6	1,221.5	1,108.4	113.18	10.793			
12,700.0	7,700.3	7,774.8	7,773.7	98.8	16.9	-86.44	-6,140.1	759.6	1,121.8	1,006.7	115.08	9.748			
12,800.0	7,700.5	7,775.1	7,774.0	100.7	16.9	-86.67	-6,140.1	759.6	1,022.1	905.1	116.98	8.738			
12,900.0	7,700.6	7,775.4	7,774.3	102.6	16.9	-86.89	-6,140.1	759.6	922.5	803.6	118.88	7.760			
13,000.0	7,700.8	7,775.8	7,774.7	104.5	16.9	-87.12	-6,140.1	759.6	822.9	702.2	120.77	6.814			
13,100.0	7,700.9	7,776.1	7,775.0	106.4	16.9	-87.35	-6,140.1	759.6	723.5	600.9	122.67	5.898			
13,200.0	7,701.0	7,776.4	7,775.3	108.2	16.9	-87.58	-6,140.1	759.6	624.3	499.8	124.57	5.012			
13,300.0	7,701.2	7,776.8	7,775.7	110.1	16.9	-87.81	-6,140.1	759.7	525.4	399.0	126.47	4.154			
13,400.0	7,701.3	7,777.1	7,776.0	112.0	16.9	-88.04	-6,140.1	759.7	427.0	298.7	128.37	3.327			
13,500.0	7,701.5	7,777.5	7,776.3	113.9	16.9	-88.27	-6,140.1	759.7	329.6	199.3	130.27	2.530			
13,600.0	7,701.6	7,777.8	7,776.7	115.8	16.9	-88.49	-6,140.1	759.7	234.3	102.2	132.17	1.773			
13,700.0	7,701.7	7,778.1	7,777.0	117.7	16.9	-88.73	-6,140.1	759.7	145.6	11.5	134.07	1.086 Level 2			
13,800.0	7,701.9	7,778.5	7,777.4	119.6	16.9	-88.96	-6,140.1	759.7	86.4	-49.6	135.96	0.636 Level 1			
13,818.6	7,701.9	7,778.5	7,777.4	119.9	16.9	-89.00	-6,140.1	759.7	84.4	-51.9	136.32	0.619 Level 1, CC, ES, SF			
13,900.0	7,702.0	7,778.8	7,777.7	121.4	16.9	-89.19	-6,140.1	759.7	117.2	-20.6	137.86	0.850 Level 1			
14,000.0	7,702.2	7,779.2	7,778.0	123.3	16.9	-89.42	-6,140.1	759.7	200.0	60.3	139.75	1.431 Level 3			
14,100.0	7,702.3	7,779.5	7,778.4	125.2	16.9	-89.65	-6,140.1	759.7	293.8	152.1	141.65	2.074			
14,200.0	7,702.4	7,779.8	7,778.7	127.1	16.9	-89.88	-6,140.1	759.7	390.6	247.1	143.54	2.721			
14,300.0	7,702.6	7,780.2	7,779.1	129.0	16.9	-90.11	-6,140.1	759.7	488.7	343.3	145.43	3.361			
14,400.0	7,702.7	7,780.5	7,779.4	130.9	16.9	-90.35	-6,140.1	759.7	587.5	440.2	147.32	3.988			
14,500.0	7,702.9	7,780.9	7,779.8	132.8	16.9	-90.58	-6,140.1	759.7	686.6	537.4	149.20	4.602			
14,600.0	7,703.0	7,781.2	7,780.1	134.7	16.9	-90.81	-6,140.1	759.7	785.9	634.8	151.09	5.202			
14,603.6	7,703.0	7,781.2	7,780.1	134.7	16.9	-90.82	-6,140.1	759.7	789.5	638.3	151.16	5.223			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 5201-UNKNOWN													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	32.0	32.0	0.0	0.6	176.08	-2,973.3	203.7	2,980.3	2,979.6	0.64	4,655.240		
100.0	100.0	132.0	132.0	0.1	2.6	176.08	-2,973.3	203.7	2,980.3	2,977.5	2.75	1,082.723		
200.0	200.0	232.0	232.0	0.3	4.6	176.08	-2,973.3	203.7	2,980.3	2,975.3	4.98	598.769		
300.0	300.0	332.0	332.0	0.6	6.6	176.08	-2,973.3	203.7	2,980.3	2,973.1	7.20	413.807		
400.0	400.0	432.0	432.0	0.8	8.6	176.08	-2,973.3	203.7	2,980.3	2,970.9	9.43	316.147		
500.0	500.0	532.0	532.0	1.0	10.6	176.08	-2,973.3	203.7	2,980.3	2,968.6	11.65	255.782		
600.0	600.0	632.0	632.0	1.2	12.6	176.08	-2,973.3	203.7	2,980.3	2,966.4	13.88	214.773		
700.0	700.0	732.0	732.0	1.5	14.6	176.08	-2,973.3	203.7	2,980.3	2,964.2	16.10	185.097		
800.0	800.0	832.0	832.0	1.7	16.6	176.08	-2,973.3	203.7	2,980.3	2,962.0	18.33	162.627		
900.0	900.0	932.0	932.0	1.9	18.6	176.08	-2,973.3	203.7	2,980.3	2,959.7	20.55	145.021		
1,000.0	1,000.0	1,032.0	1,032.0	2.1	20.6	176.08	-2,973.3	203.7	2,980.3	2,957.5	22.78	130.855		
1,100.0	1,100.0	1,132.0	1,132.0	2.4	22.6	176.08	-2,973.3	203.7	2,980.3	2,955.3	25.00	119.210		
1,200.0	1,200.0	1,232.0	1,232.0	2.6	24.6	176.08	-2,973.3	203.7	2,980.3	2,953.1	27.22	109.469		
1,300.0	1,300.0	1,332.0	1,332.0	2.8	26.6	106.57	-2,973.3	203.7	2,980.8	2,951.3	29.44	101.250		
1,400.0	1,399.8	1,431.8	1,431.8	3.0	28.6	106.63	-2,973.3	203.7	2,982.3	2,950.6	31.65	94.241		
1,500.0	1,499.5	1,531.5	1,531.5	3.2	30.6	106.75	-2,973.3	203.7	2,984.8	2,950.9	33.85	88.172		
1,600.0	1,598.7	1,630.7	1,630.7	3.5	32.6	106.90	-2,973.3	203.7	2,988.3	2,952.3	36.06	82.864		
1,700.0	1,697.5	1,729.5	1,729.5	3.7	34.6	107.10	-2,973.3	203.7	2,993.0	2,954.7	38.28	78.179		
1,800.0	1,796.0	1,828.0	1,828.0	4.0	36.6	107.41	-2,973.3	203.7	2,998.2	2,957.6	40.54	73.960		
1,900.0	1,894.4	1,926.4	1,926.4	4.3	38.5	107.72	-2,973.3	203.7	3,003.5	2,960.7	42.81	70.164		
2,000.0	1,992.9	2,024.9	2,024.9	4.7	40.5	108.03	-2,973.3	203.7	3,008.9	2,963.8	45.09	66.734		
2,100.0	2,091.4	2,123.4	2,123.4	5.0	42.5	108.34	-2,973.3	203.7	3,014.3	2,967.0	47.38	63.624		
2,200.0	2,189.9	2,221.9	2,221.9	5.3	44.4	108.65	-2,973.3	203.7	3,019.9	2,970.2	49.68	60.793		
2,300.0	2,288.4	2,320.4	2,320.4	5.7	46.4	108.95	-2,973.3	203.7	3,025.6	2,973.6	51.98	58.208		
2,400.0	2,386.9	2,418.9	2,418.9	6.0	48.4	109.26	-2,973.3	203.7	3,031.3	2,977.0	54.29	55.839		
2,500.0	2,485.4	2,517.4	2,517.4	6.4	50.3	109.56	-2,973.3	203.7	3,037.1	2,980.5	56.60	53.661		
2,600.0	2,583.9	2,615.9	2,615.9	6.8	52.3	109.86	-2,973.3	203.7	3,043.1	2,984.1	58.91	51.653		
2,700.0	2,682.4	2,714.4	2,714.4	7.1	54.3	110.17	-2,973.3	203.7	3,049.1	2,987.8	61.23	49.796		
2,800.0	2,780.9	2,812.9	2,812.9	7.5	56.3	110.47	-2,973.3	203.7	3,055.2	2,991.6	63.55	48.074		
2,900.0	2,879.3	2,911.3	2,911.3	7.9	58.2	110.77	-2,973.3	203.7	3,061.3	2,995.5	65.87	46.474		
3,000.0	2,977.8	3,009.8	3,009.8	8.3	60.2	111.07	-2,973.3	203.7	3,067.6	2,999.4	68.19	44.984		
3,100.0	3,076.3	3,108.3	3,108.3	8.6	62.2	111.36	-2,973.3	203.7	3,073.9	3,003.4	70.52	43.592		
3,200.0	3,174.8	3,206.8	3,206.8	9.0	64.1	111.66	-2,973.3	203.7	3,080.4	3,007.5	72.84	42.290		
3,300.0	3,273.3	3,305.3	3,305.3	9.4	66.1	111.95	-2,973.3	203.7	3,086.9	3,011.7	75.16	41.069		
3,400.0	3,371.8	3,403.8	3,403.8	9.8	68.1	112.25	-2,973.3	203.7	3,093.5	3,016.0	77.49	39.923		
3,500.0	3,470.3	3,502.3	3,502.3	10.2	70.0	112.54	-2,973.3	203.7	3,100.2	3,020.4	79.81	38.844		
3,600.0	3,568.8	3,600.8	3,600.8	10.5	72.0	112.83	-2,973.3	203.7	3,106.9	3,024.8	82.13	37.828		
3,700.0	3,667.3	3,699.3	3,699.3	10.9	74.0	113.12	-2,973.3	203.7	3,113.8	3,029.3	84.46	36.868		
3,800.0	3,765.7	3,797.7	3,797.7	11.3	76.0	113.41	-2,973.3	203.7	3,120.7	3,033.9	86.78	35.961		
3,900.0	3,864.2	3,896.2	3,896.2	11.7	77.9	113.70	-2,973.3	203.7	3,127.7	3,038.6	89.10	35.102		
4,000.0	3,962.7	3,994.7	3,994.7	12.1	79.9	113.98	-2,973.3	203.7	3,134.8	3,043.4	91.43	34.288		
4,100.0	4,061.2	4,093.2	4,093.2	12.5	81.9	114.27	-2,973.3	203.7	3,142.0	3,048.2	93.75	33.515		
4,200.0	4,159.7	4,191.7	4,191.7	12.9	83.8	114.55	-2,973.3	203.7	3,149.2	3,053.1	96.07	32.781		
4,300.0	4,258.2	4,290.2	4,290.2	13.2	85.8	114.83	-2,973.3	203.7	3,156.5	3,058.2	98.39	32.082		
4,400.0	4,356.7	4,388.7	4,388.7	13.6	87.8	115.11	-2,973.3	203.7	3,163.9	3,063.2	100.71	31.417		
4,500.0	4,455.2	4,487.2	4,487.2	14.0	89.7	115.39	-2,973.3	203.7	3,171.4	3,068.4	103.03	30.782		
4,600.0	4,553.7	4,585.7	4,585.7	14.4	91.7	115.67	-2,973.3	203.7	3,179.0	3,073.6	105.35	30.176		
4,700.0	4,652.2	4,684.2	4,684.2	14.8	93.7	115.95	-2,973.3	203.7	3,186.6	3,078.9	107.66	29.598		
4,800.0	4,750.6	4,782.6	4,782.6	15.2	95.7	116.23	-2,973.3	203.7	3,194.3	3,084.3	109.98	29.044		
4,900.0	4,849.1	4,881.1	4,881.1	15.6	97.6	116.50	-2,973.3	203.7	3,202.1	3,089.8	112.30	28.515		
5,000.0	4,947.6	4,979.6	4,979.6	16.0	99.6	116.77	-2,973.3	203.7	3,210.0	3,095.3	114.61	28.007		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design													Existings Sec.32-T1N-R67W - Degenhart 4 (P&A) - Wellbore #1 - Wellbore #1		Offset Site Error: 0.0 ft	
Survey Program: 5201-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				
5,100.0	5,046.1	5,078.1	5,078.1	16.4	101.6	117.05	-2,973.3	203.7	3,217.9	3,101.0	116.92	27.521	SF			
5,200.0	5,144.6	5,176.6	5,176.6	16.8	103.5	117.32	-2,973.3	203.7	3,225.9	3,106.7	119.24	27.054				
5,300.0	5,243.1	5,201.0	5,201.0	17.2	104.0	117.38	-2,973.3	203.7	3,234.8	3,114.7	120.09	26.937				
5,400.0	5,341.6	5,201.0	5,201.0	17.5	104.0	117.47	-2,973.3	203.7	3,246.6	3,126.1	120.48	26.947				
5,500.0	5,440.6	5,201.0	5,201.0	17.8	104.0	117.71	-2,973.3	203.7	3,260.1	3,139.3	120.83	26.982				
5,600.0	5,540.0	5,201.0	5,201.0	18.0	104.0	117.98	-2,973.3	203.7	3,275.0	3,153.9	121.11	27.041				
5,700.0	5,639.7	5,201.0	5,201.0	18.2	104.0	118.27	-2,973.3	203.7	3,291.3	3,170.0	121.34	27.125				
5,800.0	5,739.7	5,201.0	5,201.0	18.4	104.0	118.58	-2,973.3	203.7	3,308.9	3,187.4	121.50	27.233				
5,900.0	5,839.6	5,201.0	5,201.0	18.5	104.0	-171.68	-2,973.3	203.7	3,327.9	3,206.3	121.63	27.360				
6,000.0	5,939.6	5,201.0	5,201.0	18.7	104.0	-171.68	-2,973.3	203.7	3,349.5	3,227.7	121.79	27.502				
6,100.0	6,039.6	5,201.0	5,201.0	18.8	104.0	-171.68	-2,973.3	203.7	3,373.9	3,251.9	121.95	27.666				
6,200.0	6,139.6	5,201.0	5,201.0	19.0	104.0	-171.68	-2,973.3	203.7	3,401.1	3,279.0	122.11	27.852				
6,300.0	6,239.6	5,201.0	5,201.0	19.1	104.0	-171.68	-2,973.3	203.7	3,430.9	3,308.7	122.27	28.060				
6,400.0	6,339.6	5,201.0	5,201.0	19.3	104.0	-171.68	-2,973.3	203.7	3,463.4	3,341.0	122.44	28.288				
6,500.0	6,439.6	5,201.0	5,201.0	19.5	104.0	-171.68	-2,973.3	203.7	3,498.5	3,375.9	122.60	28.536				
6,600.0	6,539.6	5,201.0	5,201.0	19.6	104.0	-171.68	-2,973.3	203.7	3,536.1	3,413.3	122.77	28.803				
6,700.0	6,639.6	5,201.0	5,201.0	19.8	104.0	-171.68	-2,973.3	203.7	3,576.0	3,453.1	122.93	29.089				
6,800.0	6,739.6	5,201.0	5,201.0	19.9	104.0	-171.68	-2,973.3	203.7	3,618.3	3,495.2	123.10	29.392				
6,900.0	6,839.6	5,201.0	5,201.0	20.1	104.0	-171.68	-2,973.3	203.7	3,662.8	3,539.5	123.27	29.713				
7,000.0	6,939.6	5,201.0	5,201.0	20.3	104.0	8.26	-2,973.3	203.7	3,709.4	3,586.0	123.43	30.053				
7,100.0	7,039.3	5,201.0	5,201.0	20.4	104.0	7.78	-2,973.3	203.7	3,751.3	3,629.0	122.31	30.670				
7,200.0	7,137.0	5,201.0	5,201.0	20.4	104.0	7.44	-2,973.3	203.7	3,783.5	3,664.3	119.18	31.747				
7,300.0	7,231.2	5,201.0	5,201.0	20.5	104.0	7.23	-2,973.3	203.7	3,805.6	3,691.5	114.08	33.358				
7,400.0	7,320.3	5,201.0	5,201.0	20.5	104.0	7.11	-2,973.3	203.7	3,817.5	3,710.4	107.15	35.629				
7,500.0	7,402.7	5,201.0	5,201.0	20.5	104.0	7.10	-2,973.3	203.7	3,819.1	3,720.5	98.51	38.767				
7,600.0	7,477.0	5,201.0	5,201.0	20.5	104.0	7.18	-2,973.3	203.7	3,810.2	3,721.8	88.39	43.105				
7,700.0	7,541.9	5,201.0	5,201.0	20.6	104.0	7.37	-2,973.3	203.7	3,791.1	3,714.1	77.06	49.200				
7,800.0	7,596.4	5,201.0	5,201.0	20.7	104.0	7.67	-2,973.3	203.7	3,761.9	3,697.1	64.86	58.004				
7,900.0	7,639.5	5,201.0	5,201.0	21.0	104.0	8.10	-2,973.3	203.7	3,722.9	3,670.6	52.32	71.162				
8,000.0	7,670.4	5,201.0	5,201.0	21.4	104.0	8.71	-2,973.3	203.7	3,674.4	3,634.1	40.34	91.083				
8,100.0	7,688.7	5,201.0	5,201.0	21.9	104.0	9.55	-2,973.3	203.7	3,616.9	3,585.8	31.07	116.408				
8,200.0	7,694.1	5,201.0	5,201.0	22.7	104.0	10.57	-2,973.3	203.7	3,551.0	3,521.9	29.08	122.133				
8,300.0	7,694.2	5,201.0	5,201.0	23.6	104.0	10.57	-2,973.3	203.7	3,482.8	3,453.3	29.48	118.134				
8,400.0	7,694.3	5,201.0	5,201.0	24.7	104.0	10.57	-2,973.3	203.7	3,416.2	3,386.3	29.93	114.129				
8,500.0	7,694.5	5,201.0	5,201.0	25.8	104.0	10.57	-2,973.3	203.7	3,351.2	3,320.8	30.42	110.157				
8,600.0	7,694.6	5,201.0	5,201.0	27.1	104.0	10.57	-2,973.3	203.7	3,288.0	3,257.1	30.95	106.250				
8,700.0	7,694.8	5,201.0	5,201.0	28.4	104.0	10.57	-2,973.3	203.7	3,226.7	3,195.2	31.50	102.437				
8,800.0	7,694.9	5,201.0	5,201.0	29.8	104.0	10.57	-2,973.3	203.7	3,167.3	3,135.2	32.08	98.736				
8,900.0	7,695.0	5,201.0	5,201.0	31.2	104.0	10.57	-2,973.3	203.7	3,110.0	3,077.3	32.68	95.165				
9,000.0	7,695.2	5,201.0	5,201.0	32.7	104.0	10.57	-2,973.3	203.7	3,054.9	3,021.6	33.30	91.735				
9,100.0	7,695.3	5,201.0	5,201.0	34.3	104.0	10.57	-2,973.3	203.7	3,002.1	2,968.2	33.94	88.454				
9,200.0	7,695.5	5,201.0	5,201.0	35.8	104.0	10.57	-2,973.3	203.7	2,951.8	2,917.2	34.59	85.327				
9,300.0	7,695.6	5,201.0	5,201.0	37.5	104.0	10.57	-2,973.3	203.7	2,904.1	2,868.8	35.26	82.359				
9,400.0	7,695.7	5,201.0	5,201.0	39.1	104.0	10.57	-2,973.3	203.7	2,859.0	2,823.1	35.94	79.549				
9,500.0	7,695.9	5,201.0	5,201.0	40.7	104.0	10.57	-2,973.3	203.7	2,816.8	2,780.1	36.63	76.900				
9,600.0	7,696.0	5,201.0	5,201.0	42.4	104.0	10.57	-2,973.3	203.7	2,777.5	2,740.2	37.33	74.410				
9,700.0	7,696.2	5,201.0	5,201.0	44.1	104.0	10.57	-2,973.3	203.7	2,741.3	2,703.3	38.03	72.076				
9,800.0	7,696.3	5,201.0	5,201.0	45.8	104.0	10.57	-2,973.3	203.7	2,708.4	2,669.6	38.75	69.898				
9,900.0	7,696.4	5,201.0	5,201.0	47.6	104.0	10.57	-2,973.3	203.7	2,678.7	2,639.3	39.47	67.871				
10,000.0	7,696.6	5,201.0	5,201.0	49.3	104.0	10.57	-2,973.3	203.7	2,652.5	2,612.3	40.19	65.993				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Existings Sec.32-T1N-R67W - Degenhart 4 (P&A) - Wellbore #1 - Wellbore #1		Offset Site Error: 0.0 ft	
Survey Program: 5201-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					
10,100.0	7,696.7	5,201.0	5,201.0	51.1	104.0	10.57	-2,973.3	203.7	2,629.9	2,589.0	40.93	64.261					
10,200.0	7,696.9	5,201.0	5,201.0	52.8	104.0	10.57	-2,973.3	203.7	2,610.9	2,569.2	41.66	62.669					
10,300.0	7,697.0	5,201.0	5,201.0	54.6	104.0	10.57	-2,973.3	203.7	2,595.6	2,553.2	42.40	61.214					
10,400.0	7,697.1	5,201.0	5,201.0	56.4	104.0	10.57	-2,973.3	203.7	2,584.0	2,540.9	43.15	59.891					
10,500.0	7,697.3	5,201.0	5,201.0	58.2	104.0	10.57	-2,973.3	203.7	2,576.4	2,532.5	43.89	58.695					
10,600.0	7,697.4	5,201.0	5,201.0	60.0	104.0	10.57	-2,973.3	203.7	2,572.5	2,527.9	44.65	57.622					
10,648.3	7,697.5	5,201.0	5,201.0	60.9	104.0	10.57	-2,973.3	203.7	2,572.1	2,527.1	45.01	57.146	CC, ES				
10,700.0	7,697.5	5,201.0	5,201.0	61.8	104.0	10.57	-2,973.3	203.7	2,572.6	2,527.2	45.40	56.666					
10,800.0	7,697.7	5,201.0	5,201.0	63.6	104.0	10.57	-2,973.3	203.7	2,576.6	2,530.4	46.16	55.823					
10,900.0	7,697.8	5,201.0	5,201.0	65.5	104.0	10.57	-2,973.3	203.7	2,584.4	2,537.5	46.92	55.086					
11,000.0	7,698.0	5,201.0	5,201.0	67.3	104.0	10.57	-2,973.3	203.7	2,596.0	2,548.3	47.68	54.450					
11,100.0	7,698.1	5,201.0	5,201.0	69.1	104.0	10.57	-2,973.3	203.7	2,611.5	2,563.0	48.44	53.910					
11,200.0	7,698.2	5,201.0	5,201.0	71.0	104.0	10.57	-2,973.3	203.7	2,630.6	2,581.4	49.21	53.460					
11,300.0	7,698.4	5,201.0	5,201.0	72.8	104.0	10.57	-2,973.3	203.7	2,653.4	2,603.4	49.97	53.095					
11,400.0	7,698.5	5,201.0	5,201.0	74.6	104.0	10.57	-2,973.3	203.7	2,679.7	2,628.9	50.74	52.809					
11,500.0	7,698.7	5,201.0	5,201.0	76.5	104.0	10.57	-2,973.3	203.7	2,709.4	2,657.9	51.51	52.596					
11,600.0	7,698.8	5,201.0	5,201.0	78.3	104.0	10.57	-2,973.3	203.7	2,742.5	2,690.2	52.29	52.452					
11,700.0	7,698.9	5,201.0	5,201.0	80.2	104.0	10.57	-2,973.3	203.7	2,778.8	2,725.7	53.06	52.371					
11,800.0	7,699.1	5,201.0	5,201.0	82.0	104.0	10.57	-2,973.3	203.7	2,818.2	2,764.3	53.83	52.349					
11,900.0	7,699.2	5,201.0	5,201.0	83.9	104.0	10.57	-2,973.3	203.7	2,860.5	2,805.9	54.61	52.380					
12,000.0	7,699.4	5,201.0	5,201.0	85.8	104.0	10.57	-2,973.3	203.7	2,905.6	2,850.3	55.39	52.460					
12,100.0	7,699.5	5,201.0	5,201.0	87.6	104.0	10.57	-2,973.3	203.7	2,953.5	2,897.3	56.17	52.585					
12,200.0	7,699.6	5,201.0	5,201.0	89.5	104.0	10.57	-2,973.3	203.7	3,003.9	2,947.0	56.95	52.751					
12,300.0	7,699.8	5,201.0	5,201.0	91.4	104.0	10.57	-2,973.3	203.7	3,056.8	2,999.0	57.73	52.954					
12,400.0	7,699.9	5,201.0	5,201.0	93.2	104.0	10.57	-2,973.3	203.7	3,111.9	3,053.4	58.51	53.190					
12,500.0	7,700.1	5,201.0	5,201.0	95.1	104.0	10.57	-2,973.3	203.7	3,169.3	3,110.0	59.29	53.456					
12,600.0	7,700.2	5,201.0	5,201.0	97.0	104.0	10.57	-2,973.3	203.7	3,228.7	3,168.7	60.07	53.750					
12,700.0	7,700.3	5,201.0	5,201.0	98.8	104.0	10.57	-2,973.3	203.7	3,290.2	3,229.3	60.85	54.067					
12,800.0	7,700.5	5,201.0	5,201.0	100.7	104.0	10.57	-2,973.3	203.7	3,353.4	3,291.8	61.64	54.406					
12,900.0	7,700.6	5,201.0	5,201.0	102.6	104.0	10.57	-2,973.3	203.7	3,418.5	3,356.0	62.42	54.764					
13,000.0	7,700.8	5,201.0	5,201.0	104.5	104.0	10.57	-2,973.3	203.7	3,485.1	3,421.9	63.21	55.138					
13,100.0	7,700.9	5,201.0	5,201.0	106.4	104.0	10.57	-2,973.3	203.7	3,553.4	3,489.4	63.99	55.528					
13,200.0	7,701.0	5,201.0	5,201.0	108.2	104.0	10.57	-2,973.3	203.7	3,623.1	3,558.3	64.78	55.930					
13,300.0	7,701.2	5,201.0	5,201.0	110.1	104.0	10.57	-2,973.3	203.7	3,694.2	3,628.6	65.57	56.344					
13,400.0	7,701.3	5,201.0	5,201.0	112.0	104.0	10.57	-2,973.3	203.7	3,766.6	3,700.3	66.35	56.767					
13,500.0	7,701.5	5,201.0	5,201.0	113.9	104.0	10.57	-2,973.3	203.7	3,840.3	3,773.2	67.14	57.198					
13,600.0	7,701.6	5,201.0	5,201.0	115.8	104.0	10.57	-2,973.3	203.7	3,915.1	3,847.2	67.93	57.636					
13,700.0	7,701.7	5,201.0	5,201.0	117.7	104.0	10.57	-2,973.3	203.7	3,991.1	3,922.3	68.72	58.079					
13,800.0	7,701.9	5,201.0	5,201.0	119.6	104.0	10.57	-2,973.3	203.7	4,068.0	3,998.5	69.51	58.527					
13,900.0	7,702.0	5,201.0	5,201.0	121.4	104.0	10.57	-2,973.3	203.7	4,146.0	4,075.7	70.30	58.979					
14,000.0	7,702.2	5,201.0	5,201.0	123.3	104.0	10.57	-2,973.3	203.7	4,224.9	4,153.8	71.09	59.434					
14,100.0	7,702.3	5,201.0	5,201.0	125.2	104.0	10.57	-2,973.3	203.7	4,304.6	4,232.8	71.88	59.890					
14,200.0	7,702.4	5,201.0	5,201.0	127.1	104.0	10.57	-2,973.3	203.7	4,385.2	4,312.6	72.67	60.348					
14,300.0	7,702.6	5,201.0	5,201.0	129.0	104.0	10.57	-2,973.3	203.7	4,466.6	4,393.2	73.46	60.806					
14,400.0	7,702.7	5,201.0	5,201.0	130.9	104.0	10.57	-2,973.3	203.7	4,548.7	4,474.5	74.25	61.264					
14,500.0	7,702.9	5,201.0	5,201.0	132.8	104.0	10.57	-2,973.3	203.7	4,631.6	4,556.5	75.04	61.722					
14,600.0	7,703.0	5,201.0	5,201.0	134.7	104.0	10.57	-2,973.3	203.7	4,715.0	4,639.2	75.83	62.178					
14,603.6	7,703.0	5,201.0	5,201.0	134.7	104.0	10.57	-2,973.3	203.7	4,718.1	4,642.2	75.86	62.195					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design													Existings Sec.32-T1N-R67W - Degenhart 8 (P&A) - Wellbore #1 - Wellbore #1		Offset Site Error: 0.0 ft	
Survey Program: 5220-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	87.0	87.0	0.0	1.7	178.14	-6,776.1	220.5	6,779.7	6,777.9	1.74	3,895.932				
100.0	100.0	187.0	187.0	0.1	3.7	178.14	-6,776.1	220.5	6,779.7	6,775.8	3.85	1,759.781				
200.0	200.0	287.0	287.0	0.3	5.7	178.14	-6,776.1	220.5	6,779.7	6,773.6	6.08	1,115.569				
300.0	300.0	387.0	387.0	0.6	7.7	178.14	-6,776.1	220.5	6,779.7	6,771.4	8.30	816.623				
400.0	400.0	487.0	487.0	0.8	9.7	178.14	-6,776.1	220.5	6,779.7	6,769.2	10.53	644.037				
500.0	500.0	587.0	587.0	1.0	11.7	178.14	-6,776.1	220.5	6,779.7	6,766.9	12.75	531.672				
600.0	600.0	687.0	687.0	1.2	13.7	178.14	-6,776.1	220.5	6,779.7	6,764.7	14.98	452.692				
700.0	700.0	787.0	787.0	1.5	15.7	178.14	-6,776.1	220.5	6,779.7	6,762.5	17.20	394.142				
800.0	800.0	887.0	887.0	1.7	17.7	178.14	-6,776.1	220.5	6,779.7	6,760.3	19.43	349.002				
900.0	900.0	987.0	987.0	1.9	19.7	178.14	-6,776.1	220.5	6,779.7	6,758.0	21.65	313.140				
1,000.0	1,000.0	1,087.0	1,087.0	2.1	21.7	178.14	-6,776.1	220.5	6,779.7	6,755.8	23.88	283.961				
1,100.0	1,100.0	1,187.0	1,187.0	2.4	23.7	178.14	-6,776.1	220.5	6,779.7	6,753.6	26.10	259.756				
1,200.0	1,200.0	1,287.0	1,287.0	2.6	25.7	178.14	-6,776.1	220.5	6,779.7	6,751.4	28.32	239.354				
1,300.0	1,300.0	1,387.0	1,387.0	2.8	27.7	108.60	-6,776.1	220.5	6,780.2	6,749.7	30.54	222.017				
1,400.0	1,399.8	1,486.8	1,486.8	3.0	29.7	108.61	-6,776.1	220.5	6,781.9	6,749.2	32.74	207.124				
1,500.0	1,499.5	1,586.5	1,586.5	3.2	31.7	108.63	-6,776.1	220.5	6,784.7	6,749.8	34.95	194.139				
1,600.0	1,598.7	1,685.7	1,685.7	3.5	33.7	108.65	-6,776.1	220.5	6,788.6	6,751.5	37.16	182.708				
1,700.0	1,697.5	1,784.5	1,784.5	3.7	35.7	108.68	-6,776.1	220.5	6,793.7	6,754.3	39.37	172.551				
1,800.0	1,796.0	1,883.0	1,883.0	4.0	37.7	108.82	-6,776.1	220.5	6,799.3	6,757.7	41.63	163.344				
1,900.0	1,894.4	1,981.4	1,981.4	4.3	39.6	108.95	-6,776.1	220.5	6,805.0	6,761.1	43.89	155.031				
2,000.0	1,992.9	2,079.9	2,079.9	4.7	41.6	109.09	-6,776.1	220.5	6,810.7	6,764.6	46.18	147.497				
2,100.0	2,091.4	2,178.4	2,178.4	5.0	43.6	109.23	-6,776.1	220.5	6,816.5	6,768.0	48.47	140.645				
2,200.0	2,189.9	2,276.9	2,276.9	5.3	45.5	109.36	-6,776.1	220.5	6,822.3	6,771.5	50.76	134.391				
2,300.0	2,288.4	2,375.4	2,375.4	5.7	47.5	109.50	-6,776.1	220.5	6,828.1	6,775.1	53.07	128.664				
2,400.0	2,386.9	2,473.9	2,473.9	6.0	49.5	109.63	-6,776.1	220.5	6,834.0	6,778.6	55.38	123.404				
2,500.0	2,485.4	2,572.4	2,572.4	6.4	51.4	109.77	-6,776.1	220.5	6,839.9	6,782.2	57.69	118.556				
2,600.0	2,583.9	2,670.9	2,670.9	6.8	53.4	109.90	-6,776.1	220.5	6,845.9	6,785.9	60.01	114.077				
2,700.0	2,682.4	2,769.4	2,769.4	7.1	55.4	110.03	-6,776.1	220.5	6,851.9	6,789.5	62.33	109.925				
2,800.0	2,780.9	2,867.9	2,867.9	7.5	57.4	110.17	-6,776.1	220.5	6,857.9	6,793.2	64.66	106.069				
2,900.0	2,879.3	2,966.3	2,966.3	7.9	59.3	110.30	-6,776.1	220.5	6,864.0	6,797.0	66.98	102.478				
3,000.0	2,977.8	3,064.8	3,064.8	8.3	61.3	110.44	-6,776.1	220.5	6,870.1	6,800.8	69.31	99.125				
3,100.0	3,076.3	3,163.3	3,163.3	8.6	63.3	110.57	-6,776.1	220.5	6,876.2	6,804.6	71.64	95.989				
3,200.0	3,174.8	3,261.8	3,261.8	9.0	65.2	110.70	-6,776.1	220.5	6,882.4	6,808.4	73.96	93.050				
3,300.0	3,273.3	3,360.3	3,360.3	9.4	67.2	110.84	-6,776.1	220.5	6,888.6	6,812.3	76.30	90.289				
3,400.0	3,371.8	3,458.8	3,458.8	9.8	69.2	110.97	-6,776.1	220.5	6,894.9	6,816.3	78.63	87.692				
3,500.0	3,470.3	3,557.3	3,557.3	10.2	71.1	111.10	-6,776.1	220.5	6,901.2	6,820.2	80.96	85.244				
3,600.0	3,568.8	3,655.8	3,655.8	10.5	73.1	111.23	-6,776.1	220.5	6,907.5	6,824.2	83.29	82.933				
3,700.0	3,667.3	3,754.3	3,754.3	10.9	75.1	111.37	-6,776.1	220.5	6,913.9	6,828.3	85.62	80.748				
3,800.0	3,765.7	3,852.7	3,852.7	11.3	77.1	111.50	-6,776.1	220.5	6,920.3	6,832.3	87.96	78.679				
3,900.0	3,864.2	3,951.2	3,951.2	11.7	79.0	111.63	-6,776.1	220.5	6,926.8	6,836.5	90.29	76.717				
4,000.0	3,962.7	4,049.7	4,049.7	12.1	81.0	111.76	-6,776.1	220.5	6,933.2	6,840.6	92.62	74.854				
4,100.0	4,061.2	4,148.2	4,148.2	12.5	83.0	111.89	-6,776.1	220.5	6,939.8	6,844.8	94.96	73.083				
4,200.0	4,159.7	4,246.7	4,246.7	12.9	84.9	112.02	-6,776.1	220.5	6,946.3	6,849.0	97.29	71.397				
4,300.0	4,258.2	4,345.2	4,345.2	13.2	86.9	112.15	-6,776.1	220.5	6,952.9	6,853.3	99.63	69.791				
4,400.0	4,356.7	4,443.7	4,443.7	13.6	88.9	112.28	-6,776.1	220.5	6,959.5	6,857.6	101.96	68.258				
4,500.0	4,455.2	4,542.2	4,542.2	14.0	90.8	112.41	-6,776.1	220.5	6,966.2	6,861.9	104.29	66.795				
4,600.0	4,553.7	4,640.7	4,640.7	14.4	92.8	112.54	-6,776.1	220.5	6,972.9	6,866.3	106.63	65.396				
4,700.0	4,652.2	4,739.2	4,739.2	14.8	94.8	112.67	-6,776.1	220.5	6,979.7	6,870.7	108.96	64.057				
4,800.0	4,750.6	4,837.6	4,837.6	15.2	96.8	112.80	-6,776.1	220.5	6,986.4	6,875.1	111.29	62.775				
4,900.0	4,849.1	4,936.1	4,936.1	15.6	98.7	112.93	-6,776.1	220.5	6,993.3	6,879.6	113.63	61.546				
5,000.0	4,947.6	5,034.6	5,034.6	16.0	100.7	113.06	-6,776.1	220.5	7,000.1	6,884.1	115.96	60.367				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 5220-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
5,100.0	5,046.1	5,133.1	5,133.1	16.4	102.7	113.19	-6,776.1	220.5	7,007.0	6,888.7	118.29	59.234			
5,200.0	5,144.6	5,220.0	5,220.0	16.8	104.4	113.30	-6,776.1	220.5	7,013.9	6,893.5	120.39	58.258			
5,300.0	5,243.1	5,220.0	5,220.0	17.2	104.4	113.30	-6,776.1	220.5	7,021.7	6,901.0	120.77	58.141			
5,400.0	5,341.6	5,220.0	5,220.0	17.5	104.4	113.37	-6,776.1	220.5	7,030.9	6,909.7	121.16	58.030			
5,500.0	5,440.6	5,220.0	5,220.0	17.8	104.4	113.54	-6,776.1	220.5	7,040.3	6,918.8	121.49	57.951			
5,600.0	5,540.0	5,220.0	5,220.0	18.0	104.4	113.71	-6,776.1	220.5	7,049.7	6,928.0	121.76	57.897			
5,700.0	5,639.7	5,220.0	5,220.0	18.2	104.4	113.89	-6,776.1	220.5	7,059.2	6,937.2	121.99	57.869			
5,800.0	5,739.7	5,220.0	5,220.0	18.4	104.4	114.06	-6,776.1	220.5	7,068.6	6,946.5	122.16	57.866			
5,900.0	5,839.6	5,220.0	5,220.0	18.5	104.4	-176.30	-6,776.1	220.5	7,078.2	6,955.9	122.29	57.881			
6,000.0	5,939.6	5,220.0	5,220.0	18.7	104.4	-176.30	-6,776.1	220.5	7,088.8	6,966.4	122.44	57.895			
6,100.0	6,039.6	5,220.0	5,220.0	18.8	104.4	-176.30	-6,776.1	220.5	7,100.9	6,978.3	122.60	57.919			
6,200.0	6,139.6	5,220.0	5,220.0	19.0	104.4	-176.30	-6,776.1	220.5	7,114.4	6,991.6	122.76	57.954			
6,300.0	6,239.6	5,220.0	5,220.0	19.1	104.4	-176.30	-6,776.1	220.5	7,129.2	7,006.3	122.92	57.999			
6,400.0	6,339.6	5,220.0	5,220.0	19.3	104.4	-176.30	-6,776.1	220.5	7,145.4	7,022.3	123.08	58.054			
6,500.0	6,439.6	5,220.0	5,220.0	19.5	104.4	-176.30	-6,776.1	220.5	7,163.0	7,039.7	123.24	58.120			
6,600.0	6,539.6	5,220.0	5,220.0	19.6	104.4	-176.30	-6,776.1	220.5	7,181.9	7,058.5	123.41	58.196			
6,700.0	6,639.6	5,220.0	5,220.0	19.8	104.4	-176.30	-6,776.1	220.5	7,202.2	7,078.6	123.57	58.282			
6,800.0	6,739.6	5,220.0	5,220.0	19.9	104.4	-176.30	-6,776.1	220.5	7,223.7	7,100.0	123.74	58.378			
6,900.0	6,839.6	5,220.0	5,220.0	20.1	104.4	-176.30	-6,776.1	220.5	7,246.6	7,122.7	123.91	58.484			
7,000.0	6,939.6	5,220.0	5,220.0	20.3	104.4	3.69	-6,776.1	220.5	7,270.8	7,146.7	124.06	58.607			
7,100.0	7,039.3	5,220.0	5,220.0	20.4	104.4	3.60	-6,776.1	220.5	7,288.7	7,165.8	122.90	59.306			
7,200.0	7,137.0	5,220.0	5,220.0	20.4	104.4	3.57	-6,776.1	220.5	7,295.0	7,175.3	119.69	60.947			
7,300.0	7,231.2	5,220.0	5,220.0	20.5	104.4	3.60	-6,776.1	220.5	7,289.6	7,175.1	114.50	63.663			
7,400.0	7,320.3	5,220.0	5,220.0	20.5	104.4	3.68	-6,776.1	220.5	7,272.6	7,165.1	107.44	67.692			
7,500.0	7,402.7	5,220.0	5,220.0	20.5	104.4	3.83	-6,776.1	220.5	7,244.2	7,145.5	98.65	73.436			
7,600.0	7,477.0	5,220.0	5,220.0	20.5	104.4	4.05	-6,776.1	220.5	7,204.7	7,116.4	88.33	81.567			
7,700.0	7,541.9	5,220.0	5,220.0	20.6	104.4	4.37	-6,776.1	220.5	7,154.7	7,078.0	76.74	93.238			
7,800.0	7,596.4	5,220.0	5,220.0	20.7	104.4	4.82	-6,776.1	220.5	7,094.8	7,030.6	64.20	110.511			
7,900.0	7,639.5	5,220.0	5,220.0	21.0	104.4	5.46	-6,776.1	220.5	7,025.8	6,974.6	51.19	137.243			
8,000.0	7,670.4	5,220.0	5,220.0	21.4	104.4	6.41	-6,776.1	220.5	6,948.5	6,910.0	38.57	180.148			
8,100.0	7,688.7	5,220.0	5,220.0	21.9	104.4	7.87	-6,776.1	220.5	6,864.2	6,835.4	28.77	238.616			
8,200.0	7,694.1	5,220.0	5,220.0	22.7	104.4	10.04	-6,776.1	220.5	6,773.9	6,745.7	28.18	240.339			
8,300.0	7,694.2	5,220.0	5,220.0	23.6	104.4	10.04	-6,776.1	220.5	6,681.7	6,653.2	28.59	233.713			
8,400.0	7,694.3	5,220.0	5,220.0	24.7	104.4	10.04	-6,776.1	220.5	6,589.8	6,560.8	29.04	226.942			
8,500.0	7,694.5	5,220.0	5,220.0	25.8	104.4	10.04	-6,776.1	220.5	6,498.1	6,468.6	29.52	220.099			
8,600.0	7,694.6	5,220.0	5,220.0	27.1	104.4	10.04	-6,776.1	220.5	6,406.6	6,376.6	30.04	213.249			
8,700.0	7,694.8	5,220.0	5,220.0	28.4	104.4	10.04	-6,776.1	220.5	6,315.5	6,284.9	30.59	206.442			
8,800.0	7,694.9	5,220.0	5,220.0	29.8	104.4	10.04	-6,776.1	220.5	6,224.5	6,193.4	31.17	199.720			
8,900.0	7,695.0	5,220.0	5,220.0	31.2	104.4	10.04	-6,776.1	220.5	6,133.9	6,102.1	31.76	193.115			
9,000.0	7,695.2	5,220.0	5,220.0	32.7	104.4	10.04	-6,776.1	220.5	6,043.5	6,011.2	32.38	186.650			
9,100.0	7,695.3	5,220.0	5,220.0	34.3	104.4	10.04	-6,776.1	220.5	5,953.5	5,920.5	33.01	180.343			
9,200.0	7,695.5	5,220.0	5,220.0	35.8	104.4	10.04	-6,776.1	220.5	5,863.8	5,830.1	33.66	174.205			
9,300.0	7,695.6	5,220.0	5,220.0	37.5	104.4	10.04	-6,776.1	220.5	5,774.4	5,740.1	34.32	168.244			
9,400.0	7,695.7	5,220.0	5,220.0	39.1	104.4	10.04	-6,776.1	220.5	5,685.4	5,650.4	34.99	162.465			
9,500.0	7,695.9	5,220.0	5,220.0	40.7	104.4	10.04	-6,776.1	220.5	5,596.7	5,561.0	35.68	156.869			
9,600.0	7,696.0	5,220.0	5,220.0	42.4	104.4	10.04	-6,776.1	220.5	5,508.5	5,472.1	36.37	151.456			
9,700.0	7,696.2	5,220.0	5,220.0	44.1	104.4	10.04	-6,776.1	220.5	5,420.6	5,383.5	37.07	146.225			
9,800.0	7,696.3	5,220.0	5,220.0	45.8	104.4	10.04	-6,776.1	220.5	5,333.2	5,295.4	37.78	141.172			
9,900.0	7,696.4	5,220.0	5,220.0	47.6	104.4	10.04	-6,776.1	220.5	5,246.2	5,207.7	38.49	136.293			
10,000.0	7,696.6	5,220.0	5,220.0	49.3	104.4	10.04	-6,776.1	220.5	5,159.7	5,120.5	39.21	131.585			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 5220-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
10,100.0	7,696.7	5,220.0	5,220.0	51.1	104.4	10.04	-6,776.1	220.5	5,073.7	5,033.7	39.94	127.042			
10,200.0	7,696.9	5,220.0	5,220.0	52.8	104.4	10.04	-6,776.1	220.5	4,988.2	4,947.5	40.67	122.659			
10,300.0	7,697.0	5,220.0	5,220.0	54.6	104.4	10.04	-6,776.1	220.5	4,903.2	4,861.8	41.40	118.432			
10,400.0	7,697.1	5,220.0	5,220.0	56.4	104.4	10.04	-6,776.1	220.5	4,818.9	4,776.7	42.14	114.356			
10,500.0	7,697.3	5,220.0	5,220.0	58.2	104.4	10.04	-6,776.1	220.5	4,735.1	4,692.2	42.88	110.425			
10,600.0	7,697.4	5,220.0	5,220.0	60.0	104.4	10.04	-6,776.1	220.5	4,652.0	4,608.4	43.63	106.635			
10,700.0	7,697.5	5,220.0	5,220.0	61.8	104.4	10.04	-6,776.1	220.5	4,569.6	4,525.2	44.37	102.980			
10,800.0	7,697.7	5,220.0	5,220.0	63.6	104.4	10.04	-6,776.1	220.5	4,487.8	4,442.7	45.12	99.456			
10,900.0	7,697.8	5,220.0	5,220.0	65.5	104.4	10.04	-6,776.1	220.5	4,406.9	4,361.0	45.88	96.059			
11,000.0	7,698.0	5,220.0	5,220.0	67.3	104.4	10.04	-6,776.1	220.5	4,326.7	4,280.1	46.63	92.783			
11,100.0	7,698.1	5,220.0	5,220.0	69.1	104.4	10.04	-6,776.1	220.5	4,247.4	4,200.0	47.39	89.626			
11,200.0	7,698.2	5,220.0	5,220.0	71.0	104.4	10.04	-6,776.1	220.5	4,168.9	4,120.8	48.15	86.584			
11,300.0	7,698.4	5,220.0	5,220.0	72.8	104.4	10.04	-6,776.1	220.5	4,091.4	4,042.5	48.91	83.652			
11,400.0	7,698.5	5,220.0	5,220.0	74.6	104.4	10.04	-6,776.1	220.5	4,014.9	3,965.2	49.67	80.827			
11,500.0	7,698.7	5,220.0	5,220.0	76.5	104.4	10.04	-6,776.1	220.5	3,939.4	3,889.0	50.44	78.106			
11,600.0	7,698.8	5,220.0	5,220.0	78.3	104.4	10.04	-6,776.1	220.5	3,865.1	3,813.9	51.20	75.486			
11,700.0	7,698.9	5,220.0	5,220.0	80.2	104.4	10.04	-6,776.1	220.5	3,791.9	3,740.0	51.97	72.964			
11,800.0	7,699.1	5,220.0	5,220.0	82.0	104.4	10.04	-6,776.1	220.5	3,720.0	3,667.3	52.74	70.537			
11,900.0	7,699.2	5,220.0	5,220.0	83.9	104.4	10.04	-6,776.1	220.5	3,649.4	3,595.9	53.51	68.203			
12,000.0	7,699.4	5,220.0	5,220.0	85.8	104.4	10.04	-6,776.1	220.5	3,580.2	3,526.0	54.28	65.960			
12,100.0	7,699.5	5,220.0	5,220.0	87.6	104.4	10.04	-6,776.1	220.5	3,512.5	3,457.5	55.05	63.805			
12,200.0	7,699.6	5,220.0	5,220.0	89.5	104.4	10.04	-6,776.1	220.5	3,446.4	3,390.6	55.82	61.737			
12,300.0	7,699.8	5,220.0	5,220.0	91.4	104.4	10.04	-6,776.1	220.5	3,381.9	3,325.3	56.60	59.754			
12,400.0	7,699.9	5,220.0	5,220.0	93.2	104.4	10.04	-6,776.1	220.5	3,319.2	3,261.9	57.37	57.855			
12,500.0	7,700.1	5,220.0	5,220.0	95.1	104.4	10.04	-6,776.1	220.5	3,258.4	3,200.3	58.15	56.037			
12,600.0	7,700.2	5,220.0	5,220.0	97.0	104.4	10.04	-6,776.1	220.5	3,199.5	3,140.6	58.92	54.300			
12,700.0	7,700.3	5,220.0	5,220.0	98.8	104.4	10.04	-6,776.1	220.5	3,142.7	3,083.0	59.70	52.642			
12,800.0	7,700.5	5,220.0	5,220.0	100.7	104.4	10.04	-6,776.1	220.5	3,088.1	3,027.7	60.48	51.062			
12,900.0	7,700.6	5,220.0	5,220.0	102.6	104.4	10.04	-6,776.1	220.5	3,035.8	2,974.6	61.26	49.560			
13,000.0	7,700.8	5,220.0	5,220.0	104.5	104.4	10.04	-6,776.1	220.5	2,986.0	2,924.0	62.03	48.134			
13,100.0	7,700.9	5,220.0	5,220.0	106.4	104.4	10.04	-6,776.1	220.5	2,938.7	2,875.9	62.81	46.784			
13,200.0	7,701.0	5,220.0	5,220.0	108.2	104.4	10.04	-6,776.1	220.5	2,894.1	2,830.5	63.59	45.509			
13,300.0	7,701.2	5,220.0	5,220.0	110.1	104.4	10.04	-6,776.1	220.5	2,852.3	2,787.9	64.37	44.308			
13,400.0	7,701.3	5,220.0	5,220.0	112.0	104.4	10.04	-6,776.1	220.5	2,813.4	2,748.3	65.15	43.180			
13,500.0	7,701.5	5,220.0	5,220.0	113.9	104.4	10.04	-6,776.1	220.5	2,777.6	2,711.7	65.94	42.126			
13,600.0	7,701.6	5,220.0	5,220.0	115.8	104.4	10.04	-6,776.1	220.5	2,745.0	2,678.3	66.72	41.143			
13,700.0	7,701.7	5,220.0	5,220.0	117.7	104.4	10.04	-6,776.1	220.5	2,715.6	2,648.1	67.50	40.231			
13,800.0	7,701.9	5,220.0	5,220.0	119.6	104.4	10.04	-6,776.1	220.5	2,689.7	2,621.4	68.28	39.390			
13,900.0	7,702.0	5,220.0	5,220.0	121.4	104.4	10.04	-6,776.1	220.5	2,667.3	2,598.2	69.07	38.619			
14,000.0	7,702.2	5,220.0	5,220.0	123.3	104.4	10.04	-6,776.1	220.5	2,648.4	2,578.6	69.85	37.916			
14,100.0	7,702.3	5,220.0	5,220.0	125.2	104.4	10.04	-6,776.1	220.5	2,633.2	2,562.6	70.63	37.280			
14,200.0	7,702.4	5,220.0	5,220.0	127.1	104.4	10.04	-6,776.1	220.5	2,621.8	2,550.4	71.42	36.711			
14,300.0	7,702.6	5,220.0	5,220.0	129.0	104.4	10.04	-6,776.1	220.5	2,614.1	2,541.9	72.20	36.205			
14,400.0	7,702.7	5,220.0	5,220.0	130.9	104.4	10.04	-6,776.1	220.5	2,610.2	2,537.2	72.99	35.763			
14,451.0	7,702.8	5,220.0	5,220.0	131.9	104.4	10.04	-6,776.1	220.5	2,609.7	2,536.3	73.39	35.561 CC, ES			
14,500.0	7,702.9	5,220.0	5,220.0	132.8	104.4	10.04	-6,776.1	220.5	2,610.2	2,536.4	73.77	35.382			
14,600.0	7,703.0	5,220.0	5,220.0	134.7	104.4	10.04	-6,776.1	220.5	2,614.0	2,539.4	74.56	35.060			
14,603.6	7,703.0	5,220.0	5,220.0	134.7	104.4	10.04	-6,776.1	220.5	2,614.2	2,539.6	74.58	35.050 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 15-MWD														Offset Well Error:	0.0 ft
Existings Sec.32-T1N-R67W - Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1															
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
0.0	0.0	2.0	2.0	0.0	0.0	28.39	539.1	291.3	612.8						
100.0	100.0	104.5	104.5	0.1	0.2	28.38	539.0	291.2	612.6	612.3	0.33	1,852.454			
200.0	200.0	205.9	205.9	0.3	0.4	28.36	538.6	290.7	612.1	611.3	0.77	790.163			
300.0	300.0	306.8	306.8	0.6	0.6	28.38	537.9	290.6	611.4	610.2	1.21	505.047			
400.0	400.0	405.1	405.1	0.8	0.9	28.41	537.1	290.5	610.7	609.0	1.64	372.683			
489.0	489.0	491.0	491.0	1.0	1.0	28.43	536.8	290.6	610.4	608.4	2.01	303.477			
500.0	500.0	501.6	501.6	1.0	1.0	28.42	536.9	290.5	610.4	608.4	2.06	296.677			
600.0	600.0	602.6	602.6	1.2	1.3	28.42	536.9	290.5	610.5	608.0	2.49	245.167			
700.0	700.0	704.0	704.0	1.5	1.5	28.55	536.1	291.6	610.3	607.3	2.93	208.302			
800.0	800.0	806.0	805.9	1.7	1.7	28.72	534.7	293.0	609.8	606.4	3.37	180.710			
900.0	900.0	906.2	906.1	1.9	1.9	28.87	533.4	294.1	609.1	605.3	3.81	159.936			
1,000.0	1,000.0	1,005.8	1,005.7	2.1	2.1	28.90	532.7	294.0	608.4	604.2	4.24	143.590			
1,100.0	1,100.0	1,104.0	1,103.9	2.4	2.3	28.88	532.3	293.6	607.9	603.3	4.66	130.367			
1,182.0	1,182.0	1,184.1	1,184.0	2.5	2.5	28.84	532.4	293.2	607.8	602.8	5.01	121.259			
1,200.0	1,200.0	1,201.8	1,201.7	2.6	2.5	28.83	532.5	293.1	607.8	602.7	5.09	119.407			
1,300.0	1,300.0	1,300.2	1,300.2	2.8	2.7	-40.93	533.2	292.2	606.7	601.2	5.51	110.061			
1,400.0	1,399.8	1,401.6	1,401.5	3.0	2.9	-41.43	533.9	291.2	602.9	597.0	5.93	101.624			
1,500.0	1,499.5	1,504.1	1,504.1	3.2	3.1	-42.23	534.5	289.8	596.3	589.9	6.36	93.721			
1,600.0	1,598.7	1,607.7	1,607.6	3.5	3.4	-43.34	534.3	288.1	586.4	579.6	6.80	86.177			
1,700.0	1,697.5	1,704.5	1,704.4	3.7	3.6	-44.70	534.0	286.4	574.0	566.7	7.24	79.238			
1,800.0	1,796.0	1,800.0	1,799.9	4.0	3.8	-45.92	533.6	285.9	561.1	553.4	7.71	72.809			
1,900.0	1,894.4	1,897.5	1,897.3	4.3	4.0	-47.22	533.5	285.6	548.9	540.7	8.19	67.012			
2,000.0	1,992.9	1,995.2	1,995.1	4.7	4.2	-48.61	533.6	285.1	537.1	528.4	8.69	61.783			
2,100.0	2,091.4	2,094.2	2,094.1	5.0	4.4	-50.09	533.8	284.5	525.7	516.5	9.21	57.088			
2,200.0	2,189.9	2,192.2	2,192.0	5.3	4.6	-51.60	533.8	284.0	514.6	504.8	9.73	52.882			
2,300.0	2,288.4	2,290.9	2,290.8	5.7	4.8	-53.21	534.0	283.4	503.9	493.6	10.27	49.060			
2,400.0	2,386.9	2,389.4	2,389.3	6.0	5.0	-54.89	534.1	282.6	493.5	482.7	10.82	45.615			
2,500.0	2,485.4	2,487.9	2,487.8	6.4	5.2	-56.58	534.1	282.4	483.6	472.2	11.37	42.521			
2,600.0	2,583.9	2,587.6	2,587.5	6.8	5.4	-58.30	533.9	282.6	474.0	462.1	11.94	39.711			
2,700.0	2,682.4	2,689.7	2,689.6	7.1	5.6	-60.04	533.0	283.4	464.3	451.8	12.52	37.098			
2,800.0	2,780.9	2,785.9	2,785.8	7.5	5.8	-61.71	532.0	284.5	454.9	441.8	13.09	34.748			
2,900.0	2,879.3	2,882.5	2,882.4	7.9	6.0	-63.47	531.4	285.5	446.4	432.7	13.68	32.641			
3,000.0	2,977.8	2,979.1	2,978.9	8.3	6.2	-65.29	531.3	286.5	438.8	424.5	14.27	30.750			
3,100.0	3,076.3	3,074.5	3,074.4	8.6	6.4	-67.14	531.8	287.7	432.3	417.4	14.87	29.079			
3,200.0	3,174.8	3,171.5	3,171.3	9.0	6.6	-69.05	532.8	289.0	426.9	411.4	15.47	27.591			
3,300.0	3,273.3	3,268.8	3,268.6	9.4	6.8	-71.03	534.2	290.2	422.3	406.3	16.08	26.260			
3,400.0	3,371.8	3,367.1	3,366.9	9.8	7.1	-73.12	535.9	291.0	418.6	401.9	16.70	25.067			
3,500.0	3,470.3	3,469.6	3,469.4	10.2	7.3	-75.42	537.3	291.2	415.2	397.9	17.33	23.962			
3,600.0	3,568.8	3,572.1	3,571.9	10.5	7.5	-77.88	537.4	290.8	411.3	393.4	17.95	22.910			
3,700.0	3,667.3	3,687.4	3,687.1	10.9	7.7	-80.35	535.2	293.2	405.8	387.2	18.60	21.814			
3,800.0	3,765.7	3,799.4	3,798.8	11.3	7.9	-82.44	529.4	299.1	397.0	377.7	19.24	20.634			
3,900.0	3,864.2	3,906.9	3,905.7	11.7	8.2	-84.35	521.0	306.8	385.6	365.7	19.86	19.414			
4,000.0	3,962.7	4,009.7	4,007.7	12.1	8.4	-86.38	511.3	314.1	373.0	352.6	20.47	18.223			
4,100.0	4,061.2	4,108.4	4,105.7	12.5	8.6	-88.47	501.4	321.2	360.4	339.3	21.07	17.105			
4,200.0	4,159.7	4,208.2	4,204.7	12.9	8.9	-90.67	491.2	328.8	348.0	326.3	21.66	16.065			
4,300.0	4,258.2	4,302.9	4,298.7	13.2	9.1	-92.83	482.1	336.4	336.5	314.2	22.23	15.134			
4,400.0	4,356.7	4,402.8	4,397.8	13.6	9.3	-95.21	473.0	344.3	326.0	303.2	22.81	14.293			
4,500.0	4,455.2	4,506.7	4,500.7	14.0	9.6	-97.91	462.1	353.0	314.6	291.3	23.37	13.462			
4,600.0	4,553.7	4,604.1	4,597.2	14.4	9.8	-100.56	451.4	361.8	303.3	279.3	23.91	12.685			
4,700.0	4,652.2	4,699.1	4,691.4	14.8	10.1	-103.26	441.9	370.3	293.5	269.1	24.42	12.019			
4,800.0	4,750.6	4,796.0	4,787.4	15.2	10.3	-105.89	433.8	379.6	285.4	260.4	24.92	11.452			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 15-MWD														Offset Well Error:	0.0 ft
Reference															
Existing Sec.32-T1N-R67W - Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
4,900.0	4,849.1	4,895.6	4,886.2	15.6	10.6	-108.54	426.1	389.9	278.0	252.6	25.40	10.945			
5,000.0	4,947.6	4,995.2	4,985.0	16.0	10.8	-111.34	418.1	400.3	271.0	245.1	25.87	10.476			
5,100.0	5,046.1	5,094.2	5,083.1	16.4	11.1	-114.51	409.3	410.0	264.4	238.1	26.28	10.061			
5,200.0	5,144.6	5,188.4	5,176.5	16.8	11.3	-117.80	401.0	418.1	259.6	232.9	26.66	9.738			
5,300.0	5,243.1	5,281.7	5,269.4	17.2	11.6	-121.13	393.9	425.0	257.5	230.5	27.00	9.538			
5,315.2	5,258.0	5,295.6	5,283.1	17.2	11.6	-121.62	393.0	425.9	257.5	230.5	27.05	9.520 CC, ES			
5,400.0	5,341.6	5,372.8	5,360.1	17.5	11.8	-124.42	388.2	429.8	258.9	231.6	27.31	9.479			
5,500.0	5,440.6	5,462.8	5,450.0	17.8	12.0	-127.16	384.5	432.1	262.8	235.2	27.57	9.532			
5,600.0	5,540.0	5,557.8	5,544.9	18.0	12.2	-129.15	382.9	433.3	267.5	239.7	27.85	9.607			
5,700.0	5,639.7	5,654.6	5,641.8	18.2	12.4	-130.41	382.6	433.6	271.8	243.7	28.14	9.658			
5,800.0	5,739.7	5,754.8	5,742.0	18.4	12.6	-131.11	382.3	433.5	274.2	245.8	28.45	9.639			
5,900.0	5,839.6	5,855.7	5,842.9	18.5	12.8	-61.78	381.7	433.6	274.4	245.6	28.78	9.533			
6,000.0	5,939.6	5,955.6	5,942.8	18.7	13.0	-61.85	381.2	433.8	273.9	244.7	29.15	9.396			
6,100.0	6,039.6	6,054.7	6,041.9	18.8	13.2	-61.88	381.0	434.0	273.6	244.1	29.52	9.270			
6,139.6	6,079.2	6,094.1	6,081.2	18.9	13.3	-61.89	380.9	434.0	273.6	243.9	29.66	9.223			
6,200.0	6,139.6	6,154.1	6,141.3	19.0	13.4	-61.88	381.0	434.0	273.7	243.8	29.89	9.155			
6,300.0	6,239.6	6,253.8	6,241.0	19.1	13.6	-61.86	381.1	433.8	273.9	243.6	30.27	9.047			
6,400.0	6,339.6	6,354.0	6,341.1	19.3	13.8	-61.82	381.4	433.7	274.1	243.5	30.65	8.943			
6,500.0	6,439.6	6,454.2	6,441.4	19.5	14.0	-61.75	381.8	433.8	274.2	243.2	31.03	8.836			
6,600.0	6,539.6	6,553.7	6,540.9	19.6	14.2	-61.63	382.4	433.9	274.4	243.0	31.42	8.733			
6,700.0	6,639.6	6,654.3	6,641.5	19.8	14.4	-61.41	383.4	434.2	274.6	242.8	31.82	8.630			
6,800.0	6,739.6	6,755.0	6,742.2	19.9	14.6	-61.11	384.6	435.0	274.5	242.3	32.22	8.520			
6,900.0	6,839.6	6,855.7	6,842.9	20.1	14.8	-60.91	385.3	435.7	274.2	241.6	32.62	8.407			
7,000.0	6,939.6	6,956.6	6,943.7	20.3	15.0	119.26	385.7	436.6	273.6	240.6	33.02	8.288			
7,002.4	6,942.0	6,959.0	6,946.1	20.3	15.0	119.27	385.7	436.6	273.6	240.6	33.03	8.285 SF			
7,100.0	7,039.3	7,056.7	7,043.9	20.4	15.2	120.59	385.8	437.6	276.7	243.3	33.40	8.285			
7,200.0	7,137.0	7,155.4	7,142.5	20.4	15.4	123.55	385.5	438.7	286.8	253.2	33.61	8.535			
7,300.0	7,231.2	7,249.8	7,237.0	20.5	15.6	127.51	385.1	440.0	305.7	272.1	33.53	9.117			
7,400.0	7,320.3	7,334.7	7,321.8	20.5	15.8	131.43	385.6	441.1	335.9	302.9	33.03	10.171			
7,500.0	7,402.7	7,413.0	7,400.1	20.5	15.9	134.81	387.1	441.9	379.2	347.1	32.15	11.796			
7,600.0	7,477.0	7,482.9	7,470.0	20.5	16.1	137.09	389.1	442.7	435.1	404.1	31.02	14.027			
7,700.0	7,541.9	7,547.2	7,534.2	20.6	16.2	138.22	391.3	443.8	502.4	472.5	29.89	16.810			
7,800.0	7,596.4	7,601.9	7,588.9	20.7	16.3	137.57	393.1	445.4	579.1	549.9	29.13	19.879			
7,900.0	7,639.5	7,644.8	7,631.7	21.0	16.4	134.22	394.5	447.1	663.5	634.2	29.31	22.640			
8,000.0	7,670.4	7,675.7	7,662.5	21.4	16.5	126.52	395.5	448.8	753.9	722.8	31.07	24.267			
8,100.0	7,688.7	7,692.4	7,679.2	21.9	16.5	110.68	396.1	449.8	848.4	813.8	34.53	24.566			
8,200.0	7,694.1	7,694.7	7,681.5	22.7	16.5	86.62	396.2	450.0	945.0	908.8	36.26	26.059			
8,300.0	7,694.2	7,691.2	7,678.0	23.6	16.5	85.75	396.0	449.7	1,042.4	1,005.1	37.26	27.979			
8,400.0	7,694.3	7,687.7	7,674.5	24.7	16.5	84.88	395.9	449.5	1,140.2	1,101.9	38.35	29.730			
8,500.0	7,694.5	7,684.2	7,671.1	25.8	16.5	84.01	395.8	449.3	1,238.4	1,198.8	39.54	31.323			
8,600.0	7,694.6	7,680.7	7,667.6	27.1	16.5	83.14	395.7	449.1	1,336.8	1,296.0	40.79	32.772			
8,700.0	7,694.8	7,677.2	7,664.1	28.4	16.5	82.28	395.6	448.8	1,435.4	1,393.3	42.10	34.093			
8,800.0	7,694.9	7,673.7	7,660.6	29.8	16.5	81.42	395.5	448.6	1,534.2	1,490.8	43.46	35.300			
8,900.0	7,695.0	7,670.2	7,657.1	31.2	16.5	80.57	395.4	448.4	1,633.2	1,588.3	44.86	36.407			
9,000.0	7,695.2	7,666.7	7,653.6	32.7	16.5	79.72	395.2	448.2	1,732.2	1,685.9	46.28	37.426			
9,100.0	7,695.3	7,663.2	7,650.1	34.3	16.5	78.87	395.1	448.0	1,831.4	1,783.7	47.73	38.368			
9,200.0	7,695.5	7,659.7	7,646.6	35.8	16.4	78.03	395.0	447.8	1,930.6	1,881.4	49.19	39.244			
9,300.0	7,695.6	7,656.2	7,643.0	37.5	16.4	77.19	394.9	447.7	2,029.9	1,979.3	50.67	40.063			
9,400.0	7,695.7	7,652.6	7,639.5	39.1	16.4	76.36	394.8	447.5	2,129.3	2,077.1	52.15	40.830			
9,500.0	7,695.9	7,649.1	7,636.0	40.7	16.4	75.54	394.7	447.3	2,228.7	2,175.1	53.63	41.554			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 15-MWD														Offset Well Error:	0.0 ft
Reference															
Existing Sec.32-T1N-R67W - Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
9,600.0	7,696.0	7,645.5	7,632.4	42.4	16.4	74.72	394.5	447.1	2,328.2	2,273.1	55.12	42.240			
9,700.0	7,696.2	7,642.0	7,628.9	44.1	16.4	73.91	394.4	447.0	2,427.7	2,371.1	56.60	42.893			
9,800.0	7,696.3	7,638.4	7,625.3	45.8	16.4	73.10	394.3	446.8	2,527.2	2,469.1	58.07	43.517			
9,900.0	7,696.4	7,634.9	7,621.8	47.6	16.4	72.30	394.2	446.7	2,626.8	2,567.2	59.54	44.115			
10,000.0	7,696.6	7,631.5	7,618.4	49.3	16.4	71.54	394.1	446.5	2,726.4	2,665.4	61.01	44.685			
10,100.0	7,696.7	7,628.0	7,615.0	51.1	16.4	70.78	394.0	446.4	2,826.0	2,763.5	62.47	45.235			
10,200.0	7,696.9	7,624.6	7,611.5	52.8	16.4	70.03	393.9	446.2	2,925.6	2,861.7	63.92	45.769			
10,300.0	7,697.0	7,621.1	7,608.1	54.6	16.4	69.28	393.7	446.1	3,025.3	2,959.9	65.36	46.287			
10,400.0	7,697.1	7,617.7	7,604.6	56.4	16.4	68.54	393.6	445.9	3,125.0	3,058.2	66.78	46.793			
10,500.0	7,697.3	7,614.2	7,601.2	58.2	16.4	67.81	393.5	445.8	3,224.7	3,156.5	68.19	47.288			
10,600.0	7,697.4	7,610.7	7,597.7	60.0	16.3	67.08	393.4	445.7	3,324.4	3,254.8	69.59	47.773			
10,700.0	7,697.5	7,607.3	7,594.2	61.8	16.3	66.36	393.3	445.6	3,424.1	3,353.1	70.97	48.250			
10,800.0	7,697.7	7,603.8	7,590.7	63.6	16.3	65.65	393.2	445.4	3,523.8	3,451.5	72.33	48.720			
10,900.0	7,697.8	7,600.3	7,587.2	65.5	16.3	64.94	393.0	445.3	3,623.6	3,549.9	73.68	49.183			
11,000.0	7,698.0	7,596.8	7,583.7	67.3	16.3	64.24	392.9	445.2	3,723.4	3,648.3	75.01	49.641			
11,100.0	7,698.1	7,593.3	7,580.2	69.1	16.3	63.55	392.8	445.1	3,823.1	3,746.8	76.32	50.095			
11,200.0	7,698.2	7,589.8	7,576.7	71.0	16.3	62.87	392.7	444.9	3,922.9	3,845.3	77.61	50.545			
11,300.0	7,698.4	7,586.2	7,573.2	72.8	16.3	62.19	392.6	444.8	4,022.7	3,943.8	78.89	50.991			
11,400.0	7,698.5	7,582.7	7,569.7	74.6	16.3	61.52	392.5	444.7	4,122.5	4,042.3	80.15	51.435			
11,500.0	7,698.7	7,579.2	7,566.1	76.5	16.3	60.86	392.3	444.6	4,222.3	4,140.9	81.39	51.877			
11,600.0	7,698.8	7,575.6	7,562.6	78.3	16.3	60.20	392.2	444.5	4,322.1	4,239.5	82.61	52.317			
11,700.0	7,698.9	7,572.1	7,559.0	80.2	16.3	59.55	392.1	444.4	4,421.9	4,338.1	83.82	52.756			
11,800.0	7,699.1	7,568.5	7,555.5	82.0	16.3	58.91	392.0	444.3	4,521.7	4,436.7	85.00	53.194			
11,900.0	7,699.2	7,564.9	7,551.9	83.9	16.3	58.28	391.9	444.2	4,621.5	4,535.4	86.17	53.631			
12,000.0	7,699.4	7,561.3	7,548.3	85.8	16.2	57.65	391.7	444.1	4,721.4	4,634.0	87.32	54.067			
12,100.0	7,699.5	7,557.7	7,544.7	87.6	16.2	57.03	391.6	444.0	4,821.2	4,732.8	88.46	54.503			
12,200.0	7,699.6	7,554.1	7,541.2	89.5	16.2	56.42	391.5	443.9	4,921.0	4,831.5	89.57	54.939			
12,300.0	7,699.8	7,550.5	7,537.6	91.4	16.2	55.81	391.4	443.8	5,020.9	4,930.2	90.67	55.376			
12,400.0	7,699.9	7,546.9	7,533.9	93.2	16.2	55.22	391.3	443.7	5,120.7	5,029.0	91.75	55.812			
12,500.0	7,700.1	7,543.3	7,530.3	95.1	16.2	54.63	391.1	443.7	5,220.6	5,127.8	92.81	56.249			
12,600.0	7,700.2	7,539.7	7,526.7	97.0	16.2	54.05	391.0	443.6	5,320.4	5,226.6	93.86	56.686			
12,700.0	7,700.3	7,536.0	7,523.1	98.8	16.2	53.47	390.9	443.5	5,420.3	5,325.4	94.89	57.123			
12,800.0	7,700.5	7,532.4	7,519.4	100.7	16.2	52.90	390.8	443.4	5,520.2	5,424.3	95.90	57.561			
12,900.0	7,700.6	7,528.7	7,515.8	102.6	16.2	52.34	390.6	443.4	5,620.0	5,523.1	96.90	58.000			
13,000.0	7,700.8	7,525.1	7,512.1	104.5	16.2	51.79	390.5	443.3	5,719.9	5,622.0	97.88	58.440			
13,100.0	7,700.9	7,521.4	7,508.5	106.4	16.2	51.24	390.4	443.2	5,819.8	5,720.9	98.84	58.880			
13,200.0	7,701.0	7,517.7	7,504.8	108.2	16.2	50.70	390.3	443.2	5,919.6	5,819.8	99.79	59.321			
13,300.0	7,701.2	7,514.1	7,501.1	110.1	16.1	50.17	390.1	443.1	6,019.5	5,918.8	100.72	59.762			
13,400.0	7,701.3	7,510.4	7,497.4	112.0	16.1	49.64	390.0	443.0	6,119.4	6,017.7	101.64	60.205			
13,500.0	7,701.5	7,506.7	7,493.7	113.9	16.1	49.12	389.9	443.0	6,219.2	6,116.7	102.55	60.648			
13,600.0	7,701.6	7,503.0	7,490.0	115.8	16.1	48.61	389.8	442.9	6,319.1	6,215.7	103.44	61.092			
13,700.0	7,701.7	7,500.0	7,487.0	117.7	16.1	48.21	389.6	442.9	6,419.0	6,314.6	104.44	61.461			
13,800.0	7,701.9	7,500.0	7,487.0	119.6	16.1	48.21	389.6	442.9	6,518.9	6,413.0	105.93	61.537			
13,900.0	7,702.0	7,500.0	7,487.0	121.4	16.1	48.21	389.6	442.9	6,618.8	6,511.3	107.43	61.612			
14,000.0	7,702.2	7,500.0	7,487.0	123.3	16.1	48.21	389.6	442.9	6,718.7	6,609.7	108.92	61.684			
14,100.0	7,702.3	7,500.0	7,487.0	125.2	16.1	48.21	389.6	442.9	6,818.6	6,708.1	110.42	61.753			
14,200.0	7,702.4	7,500.0	7,487.0	127.1	16.1	48.21	389.6	442.9	6,918.5	6,806.5	111.91	61.821			
14,300.0	7,702.6	7,500.0	7,487.0	129.0	16.1	48.21	389.6	442.9	7,018.4	6,905.0	113.41	61.887			
14,400.0	7,702.7	7,500.0	7,487.0	130.9	16.1	48.21	389.6	442.9	7,118.3	7,003.4	114.90	61.951			
14,500.0	7,702.9	7,500.0	7,487.0	132.8	16.1	48.21	389.6	442.9	7,218.2	7,101.8	116.40	62.013			
14,600.0	7,703.0	7,500.0	7,487.0	134.7	16.1	48.21	389.6	442.9	7,318.1	7,200.2	117.89	62.073			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design												Existings Sec.32-T1N-R67W - Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft	
Survey Program: 15-MWD														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning				
14,603.6	7,703.0	7,500.0	7,487.0	134.7	16.1	48.21	389.6	442.9	7,321.7	7,203.7	117.95	62.075					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	23.1	23.1	0.0	0.0	161.12	-1,122.0	383.8	1,185.8	1,185.8	0.03	N/A		
100.0	100.0	120.5	120.5	0.1	0.2	161.10	-1,122.1	384.2	1,186.1	1,185.8	0.30	4,006.773		
200.0	200.0	222.0	222.0	0.3	0.4	161.09	-1,122.3	384.4	1,186.3	1,185.5	0.76	1,563.386		
300.0	300.0	322.3	322.3	0.6	0.6	161.11	-1,122.5	384.2	1,186.4	1,185.3	1.17	1,014.285		
400.0	400.0	422.3	422.3	0.8	0.8	161.12	-1,122.8	383.9	1,186.6	1,185.0	1.58	749.003		
500.0	500.0	523.0	523.0	1.0	1.0	161.14	-1,123.0	383.6	1,186.7	1,184.7	2.03	584.789		
600.0	600.0	624.6	624.6	1.2	1.2	161.15	-1,123.1	383.4	1,186.7	1,184.2	2.46	481.672		
700.0	700.0	724.7	724.7	1.5	1.4	161.16	-1,123.0	383.3	1,186.6	1,183.8	2.87	413.879		
731.7	731.7	755.7	755.7	1.5	1.5	161.16	-1,123.0	383.3	1,186.6	1,183.6	2.99	396.904		
800.0	800.0	822.5	822.5	1.7	1.6	161.16	-1,123.1	383.3	1,186.7	1,183.4	3.26	363.899		
900.0	900.0	919.8	919.8	1.9	1.8	161.16	-1,123.3	383.3	1,186.9	1,183.2	3.69	322.084		
1,000.0	1,000.0	1,018.1	1,018.1	2.1	2.0	161.16	-1,123.7	383.5	1,187.4	1,183.2	4.13	287.673		
1,100.0	1,100.0	1,120.4	1,120.4	2.4	2.2	161.14	-1,124.0	383.9	1,187.8	1,183.2	4.55	261.227		
1,200.0	1,200.0	1,224.4	1,224.4	2.6	2.3	161.13	-1,124.0	384.2	1,187.9	1,183.0	4.92	241.530		
1,288.3	1,288.3	1,313.4	1,313.4	2.8	2.4	91.66	-1,124.0	384.2	1,187.9	1,182.6	5.22	227.501		
1,300.0	1,300.0	1,324.8	1,324.8	2.8	2.5	91.68	-1,124.0	384.1	1,187.9	1,182.6	5.27	225.575		
1,400.0	1,399.8	1,423.5	1,423.5	3.0	2.6	91.94	-1,124.0	383.9	1,188.0	1,182.4	5.65	210.116		
1,500.0	1,499.5	1,525.6	1,525.6	3.2	2.8	92.37	-1,124.1	383.6	1,188.3	1,182.2	6.08	195.435		
1,600.0	1,598.7	1,629.9	1,629.9	3.5	3.0	93.01	-1,123.8	383.0	1,188.5	1,182.0	6.51	182.697		
1,700.0	1,697.5	1,730.1	1,730.1	3.7	3.2	93.80	-1,123.4	382.0	1,188.7	1,181.8	6.95	171.076		
1,800.0	1,796.0	1,828.5	1,828.5	4.0	3.4	94.66	-1,123.0	380.8	1,189.3	1,181.8	7.43	160.053		
1,900.0	1,894.4	1,927.5	1,927.4	4.3	3.6	95.53	-1,122.6	379.7	1,190.1	1,182.2	7.94	149.960		
2,000.0	1,992.9	2,030.0	2,030.0	4.7	3.8	96.42	-1,121.9	378.6	1,191.0	1,182.5	8.46	140.814		
2,100.0	2,091.4	2,128.1	2,128.0	5.0	4.0	97.28	-1,121.1	377.4	1,191.9	1,183.0	8.98	132.667		
2,200.0	2,189.9	2,224.3	2,224.2	5.3	4.2	98.12	-1,120.4	376.3	1,193.4	1,183.8	9.53	125.264		
2,300.0	2,288.4	2,323.8	2,323.8	5.7	4.4	98.97	-1,119.7	375.3	1,195.1	1,185.0	10.08	118.536		
2,400.0	2,386.9	2,423.4	2,423.3	6.0	4.6	99.82	-1,118.8	374.5	1,196.9	1,186.2	10.64	112.537		
2,500.0	2,485.4	2,518.6	2,518.6	6.4	4.8	100.61	-1,118.0	374.0	1,199.1	1,187.9	11.17	107.320		
2,600.0	2,583.9	2,619.7	2,619.6	6.8	4.9	101.42	-1,117.1	374.1	1,201.6	1,189.9	11.69	102.794		
2,700.0	2,682.4	2,721.2	2,721.1	7.1	5.1	102.21	-1,115.9	374.5	1,204.1	1,191.9	12.19	98.764		
2,800.0	2,780.9	2,821.7	2,821.6	7.5	5.2	103.00	-1,114.6	374.8	1,206.6	1,193.8	12.71	94.895		
2,900.0	2,879.3	2,919.7	2,919.6	7.9	5.4	103.79	-1,113.2	374.5	1,209.2	1,195.9	13.26	91.165		
3,000.0	2,977.8	3,013.2	3,013.0	8.3	5.6	104.55	-1,112.2	373.9	1,212.4	1,198.5	13.83	87.653		
3,100.0	3,076.3	3,112.9	3,112.8	8.6	5.9	105.37	-1,111.3	373.1	1,215.9	1,201.5	14.43	84.288		
3,200.0	3,174.8	3,212.7	3,212.5	9.0	6.1	106.20	-1,110.3	372.1	1,219.6	1,204.6	15.02	81.178		
3,300.0	3,273.3	3,307.8	3,307.7	9.4	6.3	106.99	-1,109.5	370.9	1,223.6	1,208.0	15.61	78.362		
3,400.0	3,371.8	3,403.1	3,402.9	9.8	6.6	107.79	-1,108.9	369.5	1,228.1	1,211.9	16.21	75.771		
3,500.0	3,470.3	3,504.5	3,504.4	10.2	6.8	108.63	-1,108.2	368.2	1,232.9	1,216.1	16.82	73.316		
3,600.0	3,568.8	3,603.8	3,603.6	10.5	7.1	109.44	-1,107.4	366.9	1,237.8	1,220.3	17.42	71.060		
3,700.0	3,667.3	3,700.0	3,699.8	10.9	7.3	110.20	-1,106.7	366.1	1,243.0	1,225.0	18.00	69.038		
3,800.0	3,765.7	3,790.7	3,790.5	11.3	7.4	110.86	-1,106.4	366.7	1,248.9	1,230.4	18.50	67.517		
3,900.0	3,864.2	3,885.1	3,884.9	11.7	7.5	111.48	-1,106.6	368.2	1,255.3	1,236.4	18.93	66.325		
4,000.0	3,962.7	3,978.5	3,978.3	12.1	7.6	112.09	-1,107.1	369.8	1,262.3	1,242.9	19.35	65.236		
4,100.0	4,061.2	4,069.6	4,069.3	12.5	7.6	112.69	-1,108.0	371.2	1,269.9	1,250.2	19.78	64.214		
4,200.0	4,159.7	4,159.9	4,159.6	12.9	7.7	113.29	-1,109.4	372.2	1,278.4	1,258.2	20.21	63.247		
4,300.0	4,258.2	4,251.8	4,251.5	13.2	7.8	113.90	-1,111.5	373.1	1,287.6	1,266.9	20.66	62.324		
4,400.0	4,356.7	4,346.4	4,346.1	13.6	7.9	114.52	-1,114.0	374.0	1,297.3	1,276.2	21.12	61.434		
4,500.0	4,455.2	4,437.8	4,437.4	14.0	8.1	115.12	-1,116.6	374.7	1,307.6	1,286.0	21.58	60.592		
4,600.0	4,553.7	4,525.6	4,525.2	14.4	8.2	115.67	-1,119.9	375.5	1,318.8	1,296.7	22.04	59.826		
4,700.0	4,652.2	4,618.7	4,618.2	14.8	8.3	116.25	-1,123.9	376.4	1,330.6	1,308.1	22.52	59.093		
4,800.0	4,750.6	4,700.0	4,699.4	15.2	8.4	116.74	-1,127.8	377.2	1,343.1	1,320.2	22.98	58.446		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
4,900.0	4,849.1	4,789.5	4,788.7	15.6	8.6	117.28	-1,132.9	377.7	1,356.7	1,333.3	23.46	57.826			
5,000.0	4,947.6	4,881.8	4,880.8	16.0	8.7	117.85	-1,138.9	377.7	1,371.3	1,347.4	23.95	57.253			
5,100.0	5,046.1	4,979.0	4,977.9	16.4	8.9	118.44	-1,145.5	377.7	1,386.3	1,361.9	24.45	56.694			
5,200.0	5,144.6	5,079.2	5,077.8	16.8	9.1	119.04	-1,152.1	377.3	1,401.3	1,376.4	24.96	56.143			
5,300.0	5,243.1	5,180.0	5,178.4	17.2	9.3	119.64	-1,158.5	376.7	1,416.3	1,390.9	25.47	55.602			
5,400.0	5,341.6	5,294.8	5,293.0	17.5	9.5	120.40	-1,165.1	376.2	1,430.7	1,404.8	25.99	55.053			
5,500.0	5,440.6	5,409.6	5,407.7	17.8	9.7	121.15	-1,170.3	375.7	1,442.6	1,416.2	26.42	54.601			
5,600.0	5,540.0	5,516.0	5,514.1	18.0	9.9	121.70	-1,174.1	374.9	1,452.0	1,425.1	26.82	54.129			
5,700.0	5,639.7	5,622.2	5,620.2	18.2	10.1	122.10	-1,177.4	373.9	1,459.1	1,431.9	27.21	53.622			
5,800.0	5,739.7	5,729.0	5,726.9	18.4	10.4	122.35	-1,180.1	372.6	1,463.8	1,436.3	27.58	53.076			
5,900.0	5,839.6	5,833.0	5,830.9	18.5	10.6	-168.03	-1,182.3	371.1	1,466.5	1,438.6	27.94	52.488			
6,000.0	5,939.6	5,936.4	5,934.2	18.7	10.8	-167.99	-1,184.2	369.7	1,468.7	1,440.3	28.33	51.842			
6,100.0	6,039.6	6,040.6	6,038.5	18.8	11.1	-167.95	-1,185.9	368.5	1,470.5	1,441.8	28.73	51.192			
6,200.0	6,139.6	6,142.3	6,140.1	19.0	11.3	-167.91	-1,187.3	367.1	1,472.2	1,443.0	29.12	50.556			
6,300.0	6,239.6	6,242.2	6,240.0	19.1	11.5	-167.88	-1,188.7	366.0	1,473.7	1,444.2	29.51	49.939			
6,400.0	6,339.6	6,344.8	6,342.6	19.3	11.8	-167.86	-1,190.2	365.1	1,475.3	1,445.4	29.91	49.325			
6,500.0	6,439.6	6,449.7	6,447.5	19.5	12.0	-167.84	-1,191.4	364.4	1,476.6	1,446.2	30.32	48.701			
6,600.0	6,539.6	6,550.8	6,548.5	19.6	12.2	-167.82	-1,192.2	363.5	1,477.6	1,446.9	30.72	48.094			
6,700.0	6,639.6	6,650.0	6,647.8	19.8	12.5	-167.78	-1,193.1	362.5	1,478.6	1,447.5	31.13	47.506			
6,800.0	6,739.6	6,750.5	6,748.2	19.9	12.7	-167.76	-1,194.0	361.5	1,479.7	1,448.2	31.53	46.927			
6,900.0	6,839.6	6,854.3	6,852.1	20.1	13.0	-167.74	-1,194.8	360.9	1,480.7	1,448.7	31.95	46.345			
7,000.0	6,939.6	6,954.7	6,952.5	20.3	13.2	12.29	-1,195.4	360.0	1,481.3	1,448.9	32.35	45.790			
7,100.0	7,039.3	7,053.2	7,050.9	20.4	13.4	12.49	-1,196.0	359.1	1,474.5	1,442.1	32.37	45.548			
7,200.0	7,137.0	7,152.0	7,149.8	20.4	13.7	13.04	-1,196.6	358.1	1,455.1	1,423.2	31.92	45.590			
7,300.0	7,231.2	7,250.0	7,247.8	20.5	13.9	13.98	-1,197.1	357.2	1,423.3	1,392.3	31.00	45.912			
7,400.0	7,320.3	7,345.7	7,343.4	20.5	14.1	15.45	-1,197.2	356.3	1,379.4	1,349.7	29.66	46.501			
7,500.0	7,402.7	7,434.2	7,431.9	20.5	14.3	17.63	-1,196.8	355.4	1,324.3	1,296.3	28.00	47.289			
7,600.0	7,477.0	7,512.0	7,509.7	20.5	14.4	20.79	-1,196.2	354.8	1,259.2	1,232.9	26.22	48.019			
7,700.0	7,541.9	7,575.0	7,572.7	20.6	14.5	25.31	-1,195.8	354.7	1,185.5	1,160.8	24.67	48.052			
7,800.0	7,596.4	7,626.8	7,624.5	20.7	14.6	31.96	-1,195.5	354.9	1,104.8	1,080.8	24.00	46.033			
7,900.0	7,639.5	7,667.5	7,665.2	21.0	14.6	41.84	-1,195.6	355.3	1,018.7	993.6	25.07	40.630			
8,000.0	7,670.4	7,697.3	7,695.0	21.4	14.6	56.11	-1,195.7	355.8	928.9	900.6	28.33	32.787			
8,100.0	7,688.7	7,716.0	7,713.7	21.9	14.6	74.17	-1,195.8	356.2	837.3	804.9	32.40	25.841			
8,200.0	7,694.1	7,722.0	7,719.7	22.7	14.6	90.13	-1,195.9	356.3	746.0	711.2	34.79	21.442			
8,300.0	7,694.2	7,722.8	7,720.5	23.6	14.6	90.28	-1,195.9	356.3	657.0	621.2	35.87	18.318			
8,400.0	7,694.3	7,723.7	7,721.4	24.7	14.6	90.43	-1,195.9	356.3	571.7	534.6	37.06	15.427			
8,500.0	7,694.5	7,724.5	7,722.2	25.8	14.7	90.58	-1,195.9	356.3	491.9	453.5	38.34	12.828			
8,600.0	7,694.6	7,725.4	7,723.1	27.1	14.7	90.74	-1,195.9	356.3	420.8	381.1	39.71	10.597			
8,700.0	7,694.8	7,726.3	7,724.0	28.4	14.7	90.89	-1,195.9	356.4	363.6	322.4	41.14	8.836			
8,800.0	7,694.9	7,727.1	7,724.8	29.8	14.7	91.05	-1,195.9	356.4	327.6	284.9	42.64	7.683			
8,874.4	7,695.0	7,727.8	7,725.5	30.9	14.7	91.16	-1,195.9	356.4	319.0	275.2	43.78	7.286 CC, ES			
8,900.0	7,695.0	7,728.0	7,725.7	31.2	14.7	91.20	-1,195.9	356.4	320.0	275.8	44.18	7.244 SF			
9,000.0	7,695.2	7,728.9	7,726.6	32.7	14.7	91.36	-1,195.9	356.4	342.8	297.1	45.76	7.492			
9,100.0	7,695.3	7,729.8	7,727.5	34.3	14.7	91.52	-1,195.9	356.4	390.7	343.3	47.38	8.246			
9,200.0	7,695.5	7,730.7	7,728.4	35.8	14.7	91.68	-1,195.9	356.4	455.8	406.8	49.03	9.297			
9,300.0	7,695.6	7,731.6	7,729.3	37.5	14.7	91.84	-1,195.9	356.5	531.9	481.2	50.70	10.490			
9,400.0	7,695.7	7,732.5	7,730.2	39.1	14.7	92.00	-1,195.9	356.5	614.8	562.4	52.40	11.733			
9,500.0	7,695.9	7,733.4	7,731.1	40.7	14.7	92.17	-1,195.9	356.5	702.2	648.1	54.12	12.976			
9,600.0	7,696.0	7,734.3	7,732.0	42.4	14.7	92.33	-1,195.9	356.5	792.6	736.7	55.85	14.191			
9,700.0	7,696.2	7,735.2	7,732.9	44.1	14.7	92.50	-1,195.9	356.5	885.0	827.4	57.60	15.365			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
9,800.0	7,696.3	7,736.1	7,733.8	45.8	14.7	92.66	-1,196.0	356.6	979.0	919.6	59.36	16.492			
9,900.0	7,696.4	7,737.1	7,734.8	47.6	14.7	92.83	-1,196.0	356.6	1,074.0	1,012.9	61.13	17.568			
10,000.0	7,696.6	7,738.0	7,735.7	49.3	14.7	93.00	-1,196.0	356.6	1,169.9	1,107.0	62.92	18.594			
10,100.0	7,696.7	7,739.0	7,736.7	51.1	14.7	93.17	-1,196.0	356.6	1,266.4	1,201.7	64.71	19.571			
10,200.0	7,696.9	7,739.9	7,737.6	52.8	14.7	93.34	-1,196.0	356.6	1,363.4	1,296.9	66.51	20.500			
10,300.0	7,697.0	7,740.9	7,738.6	54.6	14.7	93.51	-1,196.0	356.7	1,460.8	1,392.5	68.31	21.385			
10,400.0	7,697.1	7,741.8	7,739.5	56.4	14.7	93.69	-1,196.0	356.7	1,558.5	1,488.4	70.12	22.226			
10,500.0	7,697.3	7,742.8	7,740.5	58.2	14.7	93.86	-1,196.0	356.7	1,656.5	1,584.6	71.94	23.027			
10,600.0	7,697.4	7,743.8	7,741.5	60.0	14.7	94.04	-1,196.0	356.7	1,754.8	1,681.0	73.76	23.791			
10,700.0	7,697.5	7,744.8	7,742.5	61.8	14.7	94.22	-1,196.0	356.7	1,853.2	1,777.6	75.58	24.519			
10,800.0	7,697.7	7,745.8	7,743.5	63.6	14.7	94.39	-1,196.0	356.8	1,951.8	1,874.3	77.41	25.213			
10,900.0	7,697.8	7,746.8	7,744.5	65.5	14.7	94.57	-1,196.0	356.8	2,050.5	1,971.2	79.24	25.876			
11,000.0	7,698.0	7,747.8	7,745.5	67.3	14.7	94.75	-1,196.0	356.8	2,149.3	2,068.2	81.07	26.510			
11,100.0	7,698.1	7,748.8	7,746.5	69.1	14.7	94.94	-1,196.1	356.8	2,248.2	2,165.3	82.91	27.117			
11,200.0	7,698.2	7,749.8	7,747.5	71.0	14.7	95.12	-1,196.1	356.8	2,347.3	2,262.5	84.75	27.697			
11,300.0	7,698.4	7,750.9	7,748.6	72.8	14.7	95.30	-1,196.1	356.9	2,446.4	2,359.8	86.58	28.254			
11,400.0	7,698.5	7,751.9	7,749.6	74.6	14.7	95.49	-1,196.1	356.9	2,545.6	2,457.1	88.42	28.788			
11,500.0	7,698.7	7,753.0	7,750.6	76.5	14.7	95.68	-1,196.1	356.9	2,644.8	2,554.5	90.26	29.300			
11,600.0	7,698.8	7,754.0	7,751.7	78.3	14.7	95.86	-1,196.1	356.9	2,744.1	2,652.0	92.11	29.793			
11,700.0	7,698.9	7,755.1	7,752.8	80.2	14.7	96.05	-1,196.1	357.0	2,843.4	2,749.5	93.95	30.267			
11,800.0	7,699.1	7,756.1	7,753.8	82.0	14.7	96.24	-1,196.1	357.0	2,942.8	2,847.0	95.79	30.722			
11,900.0	7,699.2	7,757.2	7,754.9	83.9	14.7	96.44	-1,196.1	357.0	3,042.2	2,944.6	97.63	31.162			
12,000.0	7,699.4	7,758.3	7,756.0	85.8	14.7	96.63	-1,196.1	357.0	3,141.7	3,042.2	99.47	31.585			
12,100.0	7,699.5	7,759.4	7,757.1	87.6	14.7	96.82	-1,196.1	357.1	3,241.2	3,139.9	101.31	31.994			
12,200.0	7,699.6	7,760.5	7,758.2	89.5	14.7	97.02	-1,196.1	357.1	3,340.7	3,237.6	103.15	32.388			
12,300.0	7,699.8	7,761.6	7,759.3	91.4	14.7	97.22	-1,196.2	357.1	3,440.3	3,335.3	104.98	32.770			
12,400.0	7,699.9	7,762.7	7,760.4	93.2	14.7	97.42	-1,196.2	357.1	3,539.8	3,433.0	106.82	33.138			
12,500.0	7,700.1	7,763.9	7,761.5	95.1	14.7	97.62	-1,196.2	357.2	3,639.4	3,530.8	108.65	33.495			
12,600.0	7,700.2	7,765.0	7,762.7	97.0	14.7	97.82	-1,196.2	357.2	3,739.1	3,628.6	110.49	33.841			
12,700.0	7,700.3	7,766.1	7,763.8	98.8	14.7	98.02	-1,196.2	357.2	3,838.7	3,726.4	112.32	34.177			
12,800.0	7,700.5	7,767.3	7,765.0	100.7	14.7	98.23	-1,196.2	357.2	3,938.4	3,824.2	114.15	34.502			
12,900.0	7,700.6	7,768.5	7,766.1	102.6	14.7	98.43	-1,196.2	357.3	4,038.0	3,922.1	115.98	34.818			
13,000.0	7,700.8	7,769.6	7,767.3	104.5	14.7	98.64	-1,196.2	357.3	4,137.7	4,019.9	117.80	35.124			
13,100.0	7,700.9	7,770.8	7,768.5	106.4	14.7	98.85	-1,196.2	357.3	4,237.4	4,117.8	119.62	35.423			
13,200.0	7,701.0	7,772.0	7,769.7	108.2	14.7	99.06	-1,196.2	357.3	4,337.1	4,215.7	121.45	35.713			
13,300.0	7,701.2	7,773.2	7,770.9	110.1	14.7	99.27	-1,196.3	357.4	4,436.9	4,313.6	123.26	35.995			
13,400.0	7,701.3	7,774.4	7,772.1	112.0	14.7	99.48	-1,196.3	357.4	4,536.6	4,411.5	125.08	36.270			
13,500.0	7,701.5	7,775.6	7,773.3	113.9	14.7	99.69	-1,196.3	357.4	4,636.4	4,509.5	126.89	36.539			
13,600.0	7,701.6	7,776.9	7,774.5	115.8	14.7	99.91	-1,196.3	357.5	4,736.1	4,607.4	128.70	36.801			
13,700.0	7,701.7	7,778.1	7,775.8	117.7	14.7	100.13	-1,196.3	357.5	4,835.9	4,705.4	130.50	37.056			
13,800.0	7,701.9	7,779.3	7,777.0	119.6	14.7	100.35	-1,196.3	357.5	4,935.7	4,803.4	132.30	37.306			
13,900.0	7,702.0	7,780.6	7,778.3	121.4	14.7	100.57	-1,196.3	357.5	5,035.5	4,901.4	134.10	37.550			
14,000.0	7,702.2	7,781.9	7,779.5	123.3	14.7	100.79	-1,196.3	357.6	5,135.3	4,999.4	135.90	37.788			
14,100.0	7,702.3	7,783.1	7,780.8	125.2	14.7	101.01	-1,196.3	357.6	5,235.1	5,097.4	137.69	38.022			
14,200.0	7,702.4	7,784.4	7,782.1	127.1	14.7	101.23	-1,196.4	357.6	5,334.9	5,195.4	139.47	38.251			
14,300.0	7,702.6	7,785.7	7,783.4	129.0	14.7	101.46	-1,196.4	357.7	5,434.7	5,293.5	141.25	38.475			
14,400.0	7,702.7	7,787.0	7,784.7	130.9	14.7	101.69	-1,196.4	357.7	5,534.5	5,391.5	143.03	38.695			
14,500.0	7,702.9	7,788.3	7,786.0	132.8	14.7	101.92	-1,196.4	357.7	5,634.4	5,489.6	144.80	38.911			
14,600.0	7,703.0	7,789.7	7,787.4	134.7	14.7	102.15	-1,196.4	357.8	5,734.2	5,587.6	146.57	39.123			
14,603.6	7,703.0	7,789.7	7,787.4	134.7	14.7	102.16	-1,196.4	357.8	5,737.8	5,591.2	146.63	39.130			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 1105-MWD													Offset Well Error:	0.0 ft
Existings Sec.32-T1N-R67W - Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1														
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	-150.56	-342.4	-193.3	393.2					
100.0	100.0	95.8	95.8	0.1	0.1	-150.58	-342.6	-193.2	393.4	393.1	0.22	1,760.611 ES		
200.0	200.0	194.5	194.5	0.3	0.2	-150.66	-343.3	-193.0	393.8	393.3	0.56	700.192		
300.0	300.0	293.2	293.2	0.6	0.4	-150.80	-344.5	-192.5	394.6	393.7	0.90	437.727		
400.0	400.0	391.9	391.9	0.8	0.5	-150.99	-346.1	-191.9	395.8	394.5	1.24	318.981		
500.0	500.0	490.6	490.6	1.0	0.6	-151.23	-348.1	-191.2	397.2	395.6	1.58	251.415		
600.0	600.0	589.3	589.2	1.2	0.7	-151.52	-350.6	-190.2	399.0	397.1	1.92	207.898		
700.0	700.0	687.9	687.8	1.5	0.9	-151.86	-353.6	-189.1	401.1	398.9	2.26	177.598		
800.0	800.0	786.5	786.3	1.7	1.0	-152.26	-357.1	-187.8	403.6	401.0	2.60	155.341		
900.0	900.0	885.1	884.8	1.9	1.1	-152.69	-361.0	-186.4	406.4	403.5	2.94	138.342		
1,000.0	1,000.0	983.6	983.2	2.1	1.2	-153.18	-365.3	-184.7	409.6	406.3	3.28	124.971		
1,100.0	1,100.0	1,082.1	1,081.5	2.4	1.4	-153.70	-370.1	-182.9	413.2	409.6	3.62	114.209		
1,200.0	1,200.0	1,181.5	1,180.8	2.6	1.6	-154.24	-375.3	-181.1	417.0	413.0	4.03	103.443		
1,300.0	1,300.0	1,281.2	1,280.3	2.8	1.8	-135.83	-380.4	-179.6	422.2	417.7	4.50	93.736		
1,400.0	1,399.8	1,381.2	1,380.3	3.0	2.0	-135.78	-385.3	-178.3	429.9	424.9	4.93	87.274		
1,500.0	1,499.5	1,482.6	1,481.5	3.2	2.2	-136.05	-389.9	-177.2	439.8	434.4	5.34	82.352		
1,600.0	1,598.7	1,583.6	1,582.5	3.5	2.4	-136.63	-394.0	-176.1	451.8	446.0	5.76	78.382		
1,700.0	1,697.5	1,683.1	1,681.9	3.7	2.6	-137.46	-397.6	-175.1	466.1	459.9	6.20	75.176		
1,800.0	1,796.0	1,781.9	1,780.6	4.0	2.8	-138.60	-400.9	-174.5	481.6	475.0	6.66	72.371		
1,900.0	1,894.4	1,880.3	1,879.0	4.3	3.0	-139.72	-403.9	-174.2	497.3	490.2	7.12	69.865		
2,000.0	1,992.9	1,981.7	1,980.4	4.7	3.2	-140.82	-406.9	-174.1	513.2	505.6	7.60	67.548		
2,100.0	2,091.4	2,085.7	2,084.2	5.0	3.4	-141.83	-409.0	-172.8	527.8	519.8	8.08	65.300		
2,200.0	2,189.9	2,191.1	2,189.4	5.3	3.7	-142.26	-412.4	-166.4	541.1	532.5	8.60	62.890		
2,300.0	2,288.4	2,291.4	2,289.2	5.7	3.9	-142.34	-417.2	-157.8	554.3	545.2	9.14	60.671		
2,400.0	2,386.9	2,399.3	2,396.5	6.0	4.2	-142.35	-422.3	-147.5	567.1	557.4	9.70	58.455		
2,500.0	2,485.4	2,511.3	2,507.3	6.4	4.5	-141.97	-427.5	-132.4	577.6	567.3	10.31	56.013		
2,600.0	2,583.9	2,627.0	2,621.0	6.8	4.9	-141.14	-433.1	-111.5	585.9	574.9	10.99	53.308		
2,700.0	2,682.4	2,757.2	2,748.0	7.1	5.3	-139.99	-435.8	-83.0	590.1	578.3	11.76	50.180		
2,800.0	2,780.9	2,866.6	2,854.3	7.5	5.7	-139.01	-434.8	-56.9	590.8	578.3	12.49	47.305		
2,900.0	2,879.3	2,973.2	2,957.3	7.9	6.1	-137.91	-433.4	-29.6	590.3	577.1	13.26	44.534		
3,000.0	2,977.8	3,075.5	3,055.5	8.3	6.6	-136.59	-432.8	-0.8	589.7	575.6	14.06	41.933		
3,100.0	3,076.3	3,185.4	3,160.1	8.6	7.1	-134.95	-431.2	32.8	587.3	572.4	14.96	39.270		
3,200.0	3,174.8	3,283.9	3,254.1	9.0	7.6	-133.60	-429.0	62.1	585.1	569.3	15.77	37.098		
3,300.0	3,273.3	3,385.7	3,351.3	9.4	8.0	-132.22	-426.3	92.0	583.0	566.4	16.63	35.065		
3,400.0	3,371.8	3,488.8	3,449.6	9.8	8.6	-130.75	-423.1	123.3	580.4	562.8	17.55	33.076		
3,500.0	3,470.3	3,587.8	3,543.6	10.2	9.1	-129.25	-420.1	154.0	577.9	559.5	18.46	31.305		
3,600.0	3,568.8	3,689.1	3,639.6	10.5	9.7	-127.66	-417.0	185.9	575.8	556.4	19.44	29.621		
3,700.0	3,667.3	3,791.2	3,736.7	10.9	10.3	-126.13	-412.9	217.5	573.3	552.9	20.40	28.104		
3,800.0	3,765.7	3,879.5	3,820.9	11.3	10.7	-124.87	-409.5	244.1	571.6	550.4	21.26	26.886		
3,808.4	3,774.1	3,886.5	3,827.5	11.3	10.8	-124.78	-409.3	246.1	571.6	550.3	21.33	26.798		
3,900.0	3,864.2	3,955.9	3,894.1	11.7	11.1	-123.89	-408.5	265.5	573.3	551.3	22.05	26.004		
4,000.0	3,962.7	4,053.6	3,987.7	12.1	11.7	-122.49	-410.3	293.7	578.1	555.1	23.01	25.126		
4,100.0	4,061.2	4,157.4	4,086.8	12.5	12.2	-120.98	-411.1	324.3	582.0	558.0	24.02	24.235		
4,200.0	4,159.7	4,253.6	4,179.1	12.9	12.7	-119.72	-412.0	351.5	586.7	561.7	24.95	23.513		
4,300.0	4,258.2	4,362.1	4,283.0	13.2	13.4	-118.27	-412.6	382.8	591.3	565.3	25.99	22.747		
4,400.0	4,356.7	4,481.7	4,396.8	13.6	14.1	-116.51	-409.4	419.7	592.6	565.4	27.15	21.823		
4,500.0	4,455.2	4,577.2	4,486.8	14.0	14.7	-114.88	-406.3	451.3	593.6	565.5	28.19	21.059		
4,600.0	4,553.7	4,674.1	4,578.6	14.4	15.3	-113.37	-403.5	482.2	595.6	566.4	29.20	20.398		
4,700.0	4,652.2	4,769.6	4,669.2	14.8	15.8	-111.93	-400.7	512.2	598.0	567.8	30.20	19.804		
4,800.0	4,750.6	4,857.4	4,753.1	15.2	16.3	-110.78	-399.5	538.1	602.4	571.3	31.11	19.363		
4,900.0	4,849.1	4,957.2	4,848.2	15.6	16.9	-109.42	-399.0	568.3	608.0	575.9	32.12	18.932		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design												Existings Sec.32-T1N-R67W - Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1		Offset Site Error: 0.0 ft	
Survey Program: 1105-MWD												Offset Well Error: 0.0 ft			
Reference		Offset		Semi Major Axis			Distance					Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)		Separation Factor		
5,000.0	4,947.6	5,065.6	4,950.4	16.0	17.6	107.64	-397.1	604.6	612.7	579.5	33.25	18.428			
5,100.0	5,046.1	5,160.6	5,039.4	16.4	18.3	105.96	-394.8	637.6	617.5	583.2	34.30	18.006			
5,200.0	5,144.6	5,255.8	5,128.9	16.8	18.9	104.41	-393.3	669.9	623.6	588.3	35.30	17.667			
5,300.0	5,243.1	5,356.1	5,224.0	17.2	19.5	102.98	-392.0	701.9	630.0	593.8	36.28	17.364			
5,400.0	5,341.6	5,458.9	5,322.2	17.5	20.1	101.82	-390.8	732.2	636.7	599.5	37.23	17.102			
5,500.0	5,440.6	5,577.7	5,434.8	17.8	20.8	99.97	-386.9	769.7	641.5	603.3	38.21	16.788			
5,600.0	5,540.0	5,680.4	5,531.7	18.0	21.5	97.92	-380.3	803.2	643.4	604.4	39.03	16.484			
5,700.0	5,639.7	5,768.6	5,615.6	18.2	22.0	96.13	-375.7	829.8	646.3	606.6	39.67	16.292			
5,800.0	5,739.7	5,862.7	5,704.8	18.4	22.6	93.90	-371.6	859.4	650.9	610.6	40.27	16.162			
5,900.0	5,839.6	5,959.7	5,797.2	18.5	23.2	160.96	-367.2	889.0	656.2	615.5	40.78	16.092			
6,000.0	5,939.6	6,053.0	5,886.3	18.7	23.7	158.62	-363.8	916.3	663.2	622.0	41.23	16.085			
6,100.0	6,039.6	6,161.7	5,989.9	18.8	24.3	155.88	-358.5	948.7	670.6	628.9	41.68	16.087			
6,200.0	6,139.6	6,248.2	6,072.8	19.0	24.8	153.85	-354.5	973.0	678.6	636.6	42.03	16.147			
6,300.0	6,239.6	6,334.3	6,155.5	19.1	25.3	151.99	-352.4	996.8	689.4	647.1	42.34	16.281			
6,400.0	6,339.6	6,430.4	6,248.1	19.3	25.8	150.06	-351.2	1,022.7	701.7	659.0	42.66	16.451			
6,500.0	6,439.6	6,537.0	6,351.2	19.5	26.3	148.14	-350.2	1,049.6	714.2	671.2	42.95	16.628			
6,600.0	6,539.6	6,673.8	6,484.9	19.6	26.9	146.05	-346.5	1,078.2	723.3	680.0	43.25	16.722			
6,700.0	6,639.6	6,792.5	6,602.2	19.8	27.3	144.71	-342.5	1,096.0	729.1	685.5	43.52	16.752			
6,800.0	6,739.6	6,900.6	6,709.6	19.9	27.6	143.77	-339.1	1,108.4	733.3	689.5	43.78	16.751			
6,900.0	6,839.6	7,011.6	6,820.0	20.1	27.9	142.99	-335.6	1,118.2	736.0	692.0	44.03	16.714			
7,000.0	6,939.6	7,112.7	6,920.8	20.3	28.1	-37.54	-333.1	1,125.1	738.1	693.8	44.31	16.660			
7,100.0	7,039.3	7,211.9	7,019.8	20.4	28.3	-38.58	-331.0	1,131.4	734.2	690.0	44.22	16.604			
7,200.0	7,137.0	7,309.0	7,116.7	20.4	28.5	-40.75	-328.9	1,137.5	720.4	677.1	43.34	16.621			
7,300.0	7,231.2	7,402.3	7,209.8	20.5	28.7	-44.14	-326.9	1,143.4	697.7	655.9	41.80	16.689			
7,400.0	7,320.3	7,490.1	7,297.5	20.5	28.8	-48.85	-324.9	1,149.0	667.4	627.6	39.83	16.757			
7,500.0	7,402.7	7,571.1	7,378.3	20.5	29.0	-54.90	-323.2	1,154.1	631.7	593.9	37.80	16.713			
7,600.0	7,477.0	7,643.8	7,450.8	20.5	29.1	-62.08	-321.6	1,158.7	593.2	557.0	36.18	16.394			
7,700.0	7,541.9	7,707.0	7,513.8	20.6	29.3	-69.81	-320.2	1,162.7	555.7	520.4	35.35	15.722			
7,800.0	7,596.4	7,759.5	7,566.2	20.7	29.4	-77.12	-319.1	1,166.0	523.7	488.4	35.24	14.860			
7,900.0	7,639.5	7,800.5	7,607.1	21.0	29.4	-83.00	-318.2	1,168.6	502.3	466.7	35.57	14.120			
7,985.0	7,666.6	7,825.8	7,632.4	21.3	29.5	-86.25	-317.7	1,170.2	496.0	459.9	36.05	13.759			
8,000.0	7,670.4	7,829.3	7,635.9	21.4	29.5	-86.63	-317.6	1,170.5	496.2	460.1	36.13	13.732 SF			
8,100.0	7,688.7	7,845.4	7,651.9	21.9	29.5	-87.55	-317.2	1,171.5	508.2	471.2	36.94	13.757			
8,200.0	7,694.1	7,848.6	7,655.1	22.7	29.5	-85.89	-317.2	1,171.7	538.0	500.0	38.01	14.153			
8,300.0	7,694.2	7,846.5	7,653.1	23.6	29.5	-85.65	-317.2	1,171.6	583.4	544.3	39.09	14.923			
8,400.0	7,694.3	7,844.5	7,651.0	24.7	29.5	-85.42	-317.2	1,171.4	641.2	600.9	40.28	15.918			
8,500.0	7,694.5	7,842.5	7,649.0	25.8	29.5	-85.19	-317.3	1,171.3	708.5	667.0	41.57	17.046			
8,600.0	7,694.6	7,840.4	7,647.0	27.1	29.5	-84.95	-317.3	1,171.2	782.9	739.9	42.93	18.236			
8,700.0	7,694.8	7,838.4	7,645.0	28.4	29.5	-84.72	-317.4	1,171.0	862.4	818.0	44.36	19.441			
8,800.0	7,694.9	7,836.4	7,642.9	29.8	29.5	-84.48	-317.4	1,170.9	945.8	900.0	45.85	20.630			
8,900.0	7,695.0	7,834.3	7,640.9	31.2	29.5	-84.25	-317.5	1,170.8	1,032.2	984.8	47.38	21.785			
9,000.0	7,695.2	7,832.3	7,638.9	32.7	29.5	-84.02	-317.5	1,170.7	1,120.8	1,071.8	48.95	22.896			
9,100.0	7,695.3	7,830.3	7,636.8	34.3	29.5	-83.78	-317.6	1,170.5	1,211.2	1,160.6	50.56	23.956			
9,200.0	7,695.5	7,828.2	7,634.8	35.8	29.5	-83.55	-317.6	1,170.4	1,303.0	1,250.8	52.19	24.964			
9,300.0	7,695.6	7,826.2	7,632.8	37.5	29.5	-83.32	-317.6	1,170.3	1,395.9	1,342.1	53.85	25.920			
9,400.0	7,695.7	7,824.2	7,630.7	39.1	29.5	-83.08	-317.7	1,170.1	1,489.8	1,434.2	55.54	26.825			
9,500.0	7,695.9	7,822.1	7,628.7	40.7	29.5	-82.85	-317.7	1,170.0	1,584.3	1,527.1	57.23	27.682			
9,600.0	7,696.0	7,820.1	7,626.7	42.4	29.5	-82.62	-317.8	1,169.9	1,679.6	1,620.6	58.95	28.492			
9,700.0	7,696.2	7,818.1	7,624.7	44.1	29.5	-82.38	-317.8	1,169.8	1,775.3	1,714.6	60.67	29.259			
9,800.0	7,696.3	7,816.0	7,622.6	45.8	29.5	-82.15	-317.9	1,169.6	1,871.5	1,809.1	62.41	29.986			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 1105-MWD														Offset Well Error:	0.0 ft
Existings Sec.32-T1N-R67W - Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1															
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
9,900.0	7,696.4	7,814.0	7,620.6	47.6	29.5	-81.92	-317.9	1,169.5	1,968.0	1,903.9	64.16	30.674			
10,000.0	7,696.6	7,812.0	7,618.6	49.3	29.5	-81.69	-318.0	1,169.4	2,064.9	1,999.0	65.91	31.327			
10,100.0	7,696.7	7,809.9	7,616.5	51.1	29.5	-81.45	-318.0	1,169.2	2,162.1	2,094.4	67.68	31.947			
10,200.0	7,696.9	7,807.9	7,614.5	52.8	29.5	-81.22	-318.0	1,169.1	2,259.5	2,190.0	69.44	32.537			
10,300.0	7,697.0	7,805.9	7,612.5	54.6	29.5	-80.99	-318.1	1,169.0	2,357.1	2,285.9	71.22	33.098			
10,400.0	7,697.1	7,803.8	7,610.5	56.4	29.5	-80.76	-318.1	1,168.8	2,454.9	2,381.9	72.99	33.632			
10,500.0	7,697.3	7,801.8	7,608.4	58.2	29.5	-80.53	-318.2	1,168.7	2,552.9	2,478.1	74.77	34.142			
10,600.0	7,697.4	7,799.8	7,606.4	60.0	29.4	-80.29	-318.2	1,168.6	2,651.1	2,574.5	76.56	34.629			
10,700.0	7,697.5	7,797.7	7,604.4	61.8	29.4	-80.06	-318.3	1,168.5	2,749.3	2,671.0	78.34	35.094			
10,800.0	7,697.7	7,795.7	7,602.3	63.6	29.4	-79.83	-318.3	1,168.3	2,847.7	2,767.6	80.13	35.540			
10,900.0	7,697.8	7,793.7	7,600.3	65.5	29.4	-79.60	-318.3	1,168.2	2,946.2	2,864.3	81.91	35.967			
11,000.0	7,698.0	7,791.6	7,598.3	67.3	29.4	-79.37	-318.4	1,168.1	3,044.8	2,961.1	83.70	36.376			
11,100.0	7,698.1	7,789.6	7,596.3	69.1	29.4	-79.14	-318.4	1,167.9	3,143.5	3,058.0	85.49	36.770			
11,200.0	7,698.2	7,787.6	7,594.2	71.0	29.4	-78.91	-318.5	1,167.8	3,242.2	3,154.9	87.28	37.148			
11,300.0	7,698.4	7,785.5	7,592.2	72.8	29.4	-78.68	-318.5	1,167.7	3,341.1	3,252.0	89.07	37.512			
11,400.0	7,698.5	7,783.5	7,590.2	74.6	29.4	-78.45	-318.6	1,167.6	3,440.0	3,349.1	90.85	37.863			
11,500.0	7,698.7	7,781.5	7,588.1	76.5	29.4	-78.22	-318.6	1,167.4	3,538.9	3,446.3	92.64	38.201			
11,600.0	7,698.8	7,779.4	7,586.1	78.3	29.4	-77.99	-318.7	1,167.3	3,637.9	3,543.5	94.42	38.528			
11,700.0	7,698.9	7,777.4	7,584.1	80.2	29.4	-77.76	-318.7	1,167.2	3,737.0	3,640.8	96.21	38.844			
11,800.0	7,699.1	7,775.4	7,582.1	82.0	29.4	-77.53	-318.7	1,167.0	3,836.1	3,738.1	97.99	39.149			
11,900.0	7,699.2	7,773.3	7,580.0	83.9	29.4	-77.30	-318.8	1,166.9	3,935.3	3,835.5	99.77	39.445			
12,000.0	7,699.4	7,771.3	7,578.0	85.8	29.4	-77.08	-318.8	1,166.8	4,034.4	3,932.9	101.54	39.732			
12,100.0	7,699.5	7,769.3	7,576.0	87.6	29.4	-76.85	-318.9	1,166.7	4,133.7	4,030.4	103.32	40.010			
12,200.0	7,699.6	7,767.2	7,573.9	89.5	29.4	-76.62	-318.9	1,166.5	4,233.0	4,127.9	105.09	40.280			
12,300.0	7,699.8	7,765.2	7,571.9	91.4	29.4	-76.39	-319.0	1,166.4	4,332.3	4,225.4	106.86	40.542			
12,400.0	7,699.9	7,763.2	7,569.9	93.2	29.4	-76.17	-319.0	1,166.3	4,431.6	4,323.0	108.62	40.797			
12,500.0	7,700.1	7,761.1	7,567.9	95.1	29.4	-75.94	-319.1	1,166.1	4,530.9	4,420.6	110.39	41.046			
12,600.0	7,700.2	7,759.1	7,565.8	97.0	29.4	-75.71	-319.1	1,166.0	4,630.3	4,518.2	112.15	41.288			
12,700.0	7,700.3	7,757.1	7,563.8	98.8	29.4	-75.49	-319.1	1,165.9	4,729.7	4,615.8	113.90	41.524			
12,800.0	7,700.5	7,755.1	7,561.8	100.7	29.4	-75.26	-319.2	1,165.8	4,829.2	4,713.5	115.66	41.754			
12,900.0	7,700.6	7,753.0	7,559.7	102.6	29.4	-75.04	-319.2	1,165.6	4,928.6	4,811.2	117.41	41.978			
13,000.0	7,700.8	7,751.0	7,557.7	104.5	29.3	-74.81	-319.3	1,165.5	5,028.1	4,909.0	119.16	42.198			
13,100.0	7,700.9	7,749.0	7,555.7	106.4	29.3	-74.59	-319.3	1,165.4	5,127.6	5,006.7	120.90	42.413			
13,200.0	7,701.0	7,746.9	7,553.7	108.2	29.3	-74.36	-319.4	1,165.2	5,227.1	5,104.5	122.64	42.623			
13,300.0	7,701.2	7,744.9	7,551.6	110.1	29.3	-74.14	-319.4	1,165.1	5,326.7	5,202.3	124.37	42.828			
13,400.0	7,701.3	7,742.9	7,549.6	112.0	29.3	-73.92	-319.5	1,165.0	5,426.2	5,300.1	126.10	43.030			
13,500.0	7,701.5	7,740.8	7,547.6	113.9	29.3	-73.69	-319.5	1,164.9	5,525.8	5,398.0	127.83	43.227			
13,600.0	7,701.6	7,738.8	7,545.5	115.8	29.3	-73.47	-319.5	1,164.7	5,625.4	5,495.8	129.55	43.421			
13,700.0	7,701.7	7,736.8	7,543.5	117.7	29.3	-73.25	-319.6	1,164.6	5,725.0	5,593.7	131.27	43.611			
13,800.0	7,701.9	7,734.7	7,541.5	119.6	29.3	-73.03	-319.6	1,164.5	5,824.6	5,691.6	132.99	43.798			
13,900.0	7,702.0	7,732.7	7,539.5	121.4	29.3	-72.81	-319.7	1,164.3	5,924.2	5,789.5	134.70	43.982			
14,000.0	7,702.2	7,730.7	7,537.4	123.3	29.3	-72.59	-319.7	1,164.2	6,023.8	5,887.4	136.40	44.162			
14,100.0	7,702.3	7,728.6	7,535.4	125.2	29.3	-72.36	-319.8	1,164.1	6,123.5	5,985.4	138.10	44.340			
14,200.0	7,702.4	7,726.6	7,533.4	127.1	29.3	-72.14	-319.8	1,164.0	6,223.1	6,083.3	139.80	44.515			
14,300.0	7,702.6	7,724.6	7,531.3	129.0	29.3	-71.92	-319.9	1,163.8	6,322.8	6,181.3	141.49	44.687			
14,400.0	7,702.7	7,722.5	7,529.3	130.9	29.3	-71.71	-319.9	1,163.7	6,422.5	6,279.3	143.18	44.857			
14,500.0	7,702.9	7,720.5	7,527.3	132.8	29.3	-71.49	-319.9	1,163.6	6,522.1	6,377.3	144.86	45.024			
14,600.0	7,703.0	7,718.5	7,525.3	134.7	29.3	-71.27	-320.0	1,163.4	6,621.8	6,475.3	146.54	45.189			
14,603.6	7,703.0	7,718.4	7,525.2	134.7	29.3	-71.26	-320.0	1,163.4	6,625.4	6,478.8	146.60	45.195			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 8062-UNKNOWN													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	19.0	19.0	0.0	0.4	164.01	-1,672.1	479.1	1,739.4	1,739.0	0.38	4,574.852		
100.0	100.0	119.0	119.0	0.1	2.4	164.01	-1,672.1	479.1	1,739.4	1,736.9	2.49	697.814		
200.0	200.0	219.0	219.0	0.3	4.4	164.01	-1,672.1	479.1	1,739.4	1,734.6	4.72	368.715		
300.0	300.0	319.0	319.0	0.6	6.4	164.01	-1,672.1	479.1	1,739.4	1,732.4	6.94	250.552		
400.0	400.0	419.0	419.0	0.8	8.4	164.01	-1,672.1	479.1	1,739.4	1,730.2	9.17	189.744		
500.0	500.0	519.0	519.0	1.0	10.4	164.01	-1,672.1	479.1	1,739.4	1,728.0	11.39	152.687		
600.0	600.0	619.0	619.0	1.2	12.4	164.01	-1,672.1	479.1	1,739.4	1,725.7	13.62	127.740		
700.0	700.0	719.0	719.0	1.5	14.4	164.01	-1,672.1	479.1	1,739.4	1,723.5	15.84	109.800		
800.0	800.0	819.0	819.0	1.7	16.4	164.01	-1,672.1	479.1	1,739.4	1,721.3	18.07	96.278		
900.0	900.0	919.0	919.0	1.9	18.4	164.01	-1,672.1	479.1	1,739.4	1,719.1	20.29	85.722		
1,000.0	1,000.0	1,019.0	1,019.0	2.1	20.4	164.01	-1,672.1	479.1	1,739.4	1,716.8	22.52	77.252		
1,100.0	1,100.0	1,119.0	1,119.0	2.4	22.4	164.01	-1,672.1	479.1	1,739.4	1,714.6	24.74	70.305		
1,200.0	1,200.0	1,219.0	1,219.0	2.6	24.4	164.01	-1,672.1	479.1	1,739.4	1,712.4	26.96	64.504		
1,300.0	1,300.0	1,319.0	1,319.0	2.8	26.4	94.53	-1,672.1	479.1	1,739.5	1,710.3	29.18	59.611		
1,400.0	1,399.8	1,418.8	1,418.8	3.0	28.4	94.69	-1,672.1	479.1	1,739.9	1,708.5	31.39	55.428		
1,500.0	1,499.5	1,518.5	1,518.5	3.2	30.4	94.96	-1,672.1	479.1	1,740.7	1,707.0	33.60	51.797		
1,600.0	1,598.7	1,617.7	1,617.7	3.5	32.4	95.34	-1,672.1	479.1	1,741.8	1,705.9	35.83	48.613		
1,700.0	1,697.5	1,716.5	1,716.5	3.7	34.3	95.81	-1,672.1	479.1	1,743.3	1,705.2	38.07	45.794		
1,800.0	1,796.0	1,815.0	1,815.0	4.0	36.3	96.37	-1,672.1	479.1	1,745.2	1,704.8	40.33	43.273		
1,900.0	1,894.4	1,913.4	1,913.4	4.3	38.3	96.93	-1,672.1	479.1	1,747.2	1,704.6	42.61	41.009		
2,000.0	1,992.9	2,011.9	2,011.9	4.7	40.2	97.48	-1,672.1	479.1	1,749.4	1,704.5	44.89	38.967		
2,100.0	2,091.4	2,110.4	2,110.4	5.0	42.2	98.03	-1,672.1	479.1	1,751.8	1,704.6	47.19	37.119		
2,200.0	2,189.9	2,208.9	2,208.9	5.3	44.2	98.59	-1,672.1	479.1	1,754.3	1,704.8	49.50	35.440		
2,300.0	2,288.4	2,307.4	2,307.4	5.7	46.1	99.14	-1,672.1	479.1	1,757.0	1,705.2	51.81	33.910		
2,400.0	2,386.9	2,405.9	2,405.9	6.0	48.1	99.68	-1,672.1	479.1	1,759.9	1,705.8	54.13	32.510		
2,500.0	2,485.4	2,504.4	2,504.4	6.4	50.1	100.23	-1,672.1	479.1	1,762.9	1,706.5	56.46	31.227		
2,600.0	2,583.9	2,602.9	2,602.9	6.8	52.1	100.78	-1,672.1	479.1	1,766.1	1,707.4	58.78	30.046		
2,700.0	2,682.4	2,701.4	2,701.4	7.1	54.0	101.32	-1,672.1	479.1	1,769.5	1,708.4	61.11	28.956		
2,800.0	2,780.9	2,799.9	2,799.9	7.5	56.0	101.86	-1,672.1	479.1	1,773.0	1,709.6	63.44	27.949		
2,900.0	2,879.3	2,898.3	2,898.3	7.9	58.0	102.40	-1,672.1	479.1	1,776.7	1,710.9	65.77	27.014		
3,000.0	2,977.8	2,996.8	2,996.8	8.3	59.9	102.93	-1,672.1	479.1	1,780.6	1,712.5	68.10	26.146		
3,100.0	3,076.3	3,095.3	3,095.3	8.6	61.9	103.47	-1,672.1	479.1	1,784.6	1,714.1	70.43	25.337		
3,200.0	3,174.8	3,193.8	3,193.8	9.0	63.9	104.00	-1,672.1	479.1	1,788.8	1,716.0	72.77	24.582		
3,300.0	3,273.3	3,292.3	3,292.3	9.4	65.8	104.53	-1,672.1	479.1	1,793.1	1,718.0	75.10	23.876		
3,400.0	3,371.8	3,390.8	3,390.8	9.8	67.8	105.06	-1,672.1	479.1	1,797.6	1,720.1	77.43	23.215		
3,500.0	3,470.3	3,489.3	3,489.3	10.2	69.8	105.58	-1,672.1	479.1	1,802.2	1,722.4	79.76	22.595		
3,600.0	3,568.8	3,587.8	3,587.8	10.5	71.8	106.10	-1,672.1	479.1	1,807.0	1,724.9	82.09	22.011		
3,700.0	3,667.3	3,686.3	3,686.3	10.9	73.7	106.62	-1,672.1	479.1	1,811.9	1,727.5	84.42	21.462		
3,800.0	3,765.7	3,784.7	3,784.7	11.3	75.7	107.14	-1,672.1	479.1	1,817.0	1,730.3	86.75	20.945		
3,900.0	3,864.2	3,883.2	3,883.2	11.7	77.7	107.65	-1,672.1	479.1	1,822.3	1,733.2	89.08	20.456		
4,000.0	3,962.7	3,981.7	3,981.7	12.1	79.6	108.16	-1,672.1	479.1	1,827.7	1,736.3	91.41	19.995		
4,100.0	4,061.2	4,080.2	4,080.2	12.5	81.6	108.67	-1,672.1	479.1	1,833.2	1,739.5	93.74	19.558		
4,200.0	4,159.7	4,178.7	4,178.7	12.9	83.6	109.17	-1,672.1	479.1	1,838.9	1,742.9	96.06	19.143		
4,300.0	4,258.2	4,277.2	4,277.2	13.2	85.5	109.67	-1,672.1	479.1	1,844.8	1,746.4	98.38	18.751		
4,400.0	4,356.7	4,375.7	4,375.7	13.6	87.5	110.17	-1,672.1	479.1	1,850.7	1,750.0	100.70	18.378		
4,500.0	4,455.2	4,474.2	4,474.2	14.0	89.5	110.66	-1,672.1	479.1	1,856.9	1,753.8	103.03	18.023		
4,600.0	4,553.7	4,572.7	4,572.7	14.4	91.5	111.16	-1,672.1	479.1	1,863.1	1,757.8	105.34	17.686		
4,700.0	4,652.2	4,671.2	4,671.2	14.8	93.4	111.65	-1,672.1	479.1	1,869.5	1,761.9	107.66	17.365		
4,800.0	4,750.6	4,769.6	4,769.6	15.2	95.4	112.13	-1,672.1	479.1	1,876.1	1,766.1	109.98	17.059		
4,900.0	4,849.1	4,868.1	4,868.1	15.6	97.4	112.61	-1,672.1	479.1	1,882.7	1,770.4	112.29	16.767		
5,000.0	4,947.6	4,966.6	4,966.6	16.0	99.3	113.09	-1,672.1	479.1	1,889.5	1,774.9	114.60	16.488		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 8062-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
5,100.0	5,046.1	5,065.1	5,065.1	16.4	101.3	113.57	-1,672.1	479.1	1,896.5	1,779.6	116.91	16.222			
5,200.0	5,144.6	5,163.6	5,163.6	16.8	103.3	114.04	-1,672.1	479.1	1,903.6	1,784.3	119.22	15.967			
5,300.0	5,243.1	5,262.1	5,262.1	17.2	105.2	114.51	-1,672.1	479.1	1,910.8	1,789.2	121.53	15.723			
5,400.0	5,341.6	5,360.6	5,360.6	17.5	107.2	115.01	-1,672.1	479.1	1,918.0	1,794.2	123.85	15.486			
5,500.0	5,440.6	5,459.6	5,459.6	17.8	109.2	115.51	-1,672.1	479.1	1,924.1	1,798.0	126.14	15.254			
5,600.0	5,540.0	5,559.0	5,559.0	18.0	111.2	115.88	-1,672.1	479.1	1,928.9	1,800.5	128.41	15.022			
5,700.0	5,639.7	5,658.7	5,658.7	18.2	113.2	116.13	-1,672.1	479.1	1,932.1	1,801.5	130.63	14.791			
5,800.0	5,739.7	5,758.7	5,758.7	18.4	115.2	116.27	-1,672.1	479.1	1,933.8	1,801.0	132.80	14.562			
5,900.0	5,839.6	5,858.6	5,858.6	18.5	117.2	-174.18	-1,672.1	479.1	1,934.1	1,799.1	134.94	14.333			
6,000.0	5,939.6	5,958.6	5,958.6	18.7	119.2	-174.18	-1,672.1	479.1	1,934.1	1,797.0	137.10	14.107			
6,100.0	6,039.6	6,058.6	6,058.6	18.8	121.2	-174.18	-1,672.1	479.1	1,934.1	1,794.8	139.25	13.889			
6,200.0	6,139.6	6,158.6	6,158.6	19.0	123.2	-174.18	-1,672.1	479.1	1,934.1	1,792.7	141.41	13.677			
6,300.0	6,239.6	6,258.6	6,258.6	19.1	125.2	-174.18	-1,672.1	479.1	1,934.1	1,790.5	143.58	13.471			
6,400.0	6,339.6	6,358.6	6,358.6	19.3	127.2	-174.18	-1,672.1	479.1	1,934.1	1,788.3	145.74	13.271			
6,500.0	6,439.6	6,458.6	6,458.6	19.5	129.2	-174.18	-1,672.1	479.1	1,934.1	1,786.2	147.90	13.077			
6,600.0	6,539.6	6,558.6	6,558.6	19.6	131.2	-174.18	-1,672.1	479.1	1,934.1	1,784.0	150.07	12.888			
6,700.0	6,639.6	6,658.6	6,658.6	19.8	133.2	-174.18	-1,672.1	479.1	1,934.1	1,781.8	152.23	12.705			
6,800.0	6,739.6	6,758.6	6,758.6	19.9	135.2	-174.18	-1,672.1	479.1	1,934.1	1,779.7	154.40	12.526			
6,900.0	6,839.6	6,858.6	6,858.6	20.1	137.2	-174.18	-1,672.1	479.1	1,934.1	1,777.5	156.57	12.353			
7,000.0	6,939.6	6,958.6	6,958.6	20.3	139.2	5.82	-1,672.1	479.1	1,934.0	1,775.3	158.72	12.185			
7,100.0	7,039.3	7,058.3	7,058.3	20.4	141.2	5.91	-1,672.1	479.1	1,926.3	1,767.1	159.18	12.101			
7,200.0	7,137.0	7,156.0	7,156.0	20.4	143.1	6.14	-1,672.1	479.1	1,905.7	1,748.8	156.88	12.147			
7,300.0	7,231.2	7,250.2	7,250.2	20.5	145.0	6.54	-1,672.1	479.1	1,872.5	1,720.7	151.80	12.335			
7,400.0	7,320.3	7,339.3	7,339.3	20.5	146.8	7.16	-1,672.1	479.1	1,827.5	1,683.5	144.01	12.690			
7,500.0	7,402.7	7,421.7	7,421.7	20.5	148.4	8.08	-1,672.1	479.1	1,771.3	1,637.6	133.70	13.248			
7,600.0	7,477.0	7,496.0	7,496.0	20.5	149.9	9.42	-1,672.1	479.1	1,704.9	1,583.6	121.27	14.059			
7,700.0	7,541.9	7,560.9	7,560.9	20.6	151.2	11.45	-1,672.1	479.1	1,629.4	1,521.9	107.53	15.154			
7,800.0	7,596.4	7,615.4	7,615.4	20.7	152.3	14.66	-1,672.1	479.1	1,546.3	1,451.9	94.39	16.382			
7,900.0	7,639.5	7,658.5	7,658.5	21.0	153.2	20.12	-1,672.1	479.1	1,456.9	1,370.0	86.88	16.770			
8,000.0	7,670.4	7,689.4	7,689.4	21.4	153.8	30.53	-1,672.1	479.1	1,362.8	1,265.9	96.94	14.058			
8,100.0	7,688.7	7,707.7	7,707.7	21.9	154.2	53.03	-1,672.1	479.1	1,265.7	1,126.5	139.20	9.092			
8,200.0	7,694.1	7,713.1	7,713.1	22.7	154.3	89.53	-1,672.1	479.1	1,167.2	992.8	174.38	6.694			
8,300.0	7,694.2	7,713.2	7,713.2	23.6	154.3	89.57	-1,672.1	479.1	1,068.8	893.3	175.45	6.091			
8,400.0	7,694.3	7,713.3	7,713.3	24.7	154.3	89.61	-1,672.1	479.1	970.6	794.0	176.64	5.495			
8,500.0	7,694.5	7,713.5	7,713.5	25.8	154.3	89.65	-1,672.1	479.1	872.9	695.0	177.92	4.906			
8,600.0	7,694.6	7,713.6	7,713.6	27.1	154.3	89.69	-1,672.1	479.1	775.8	596.5	179.29	4.327			
8,700.0	7,694.8	7,713.8	7,713.8	28.4	154.3	89.73	-1,672.1	479.1	679.5	498.8	180.72	3.760			
8,800.0	7,694.9	7,713.9	7,713.9	29.8	154.3	89.78	-1,672.1	479.1	584.5	402.3	182.22	3.208			
8,900.0	7,695.0	7,714.0	7,714.0	31.2	154.3	89.82	-1,672.1	479.1	491.5	307.7	183.76	2.675			
9,000.0	7,695.2	7,714.2	7,714.2	32.7	154.3	89.86	-1,672.1	479.1	401.8	216.4	185.34	2.168			
9,100.0	7,695.3	7,714.3	7,714.3	34.3	154.3	89.90	-1,672.1	479.1	318.3	131.3	186.96	1.702			
9,200.0	7,695.5	7,714.5	7,714.5	35.8	154.3	89.94	-1,672.1	479.1	247.4	58.8	188.61	1.312 Level 3			
9,300.0	7,695.6	7,714.6	7,714.6	37.5	154.3	89.98	-1,672.1	479.1	202.7	12.4	190.29	1.065 Level 2			
9,350.6	7,695.7	7,714.7	7,714.7	38.3	154.3	90.00	-1,672.1	479.1	196.3	5.1	191.15	1.027 Level 2, CC, ES, SF			
9,400.0	7,695.7	7,714.7	7,714.7	39.1	154.3	90.02	-1,672.1	479.1	202.4	10.4	191.99	1.054 Level 2			
9,500.0	7,695.9	7,714.9	7,714.9	40.7	154.3	90.06	-1,672.1	479.1	246.7	52.9	193.71	1.273 Level 3			
9,600.0	7,696.0	7,715.0	7,715.0	42.4	154.3	90.10	-1,672.1	479.1	317.4	121.9	195.44	1.624			
9,700.0	7,696.2	7,715.2	7,715.2	44.1	154.3	90.14	-1,672.1	479.1	400.8	203.6	197.20	2.032			
9,800.0	7,696.3	7,715.3	7,715.3	45.8	154.3	90.18	-1,672.1	479.1	490.4	291.4	198.96	2.465			
9,900.0	7,696.4	7,715.4	7,715.4	47.6	154.3	90.22	-1,672.1	479.1	583.4	382.7	200.74	2.906			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 8062-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
10,000.0	7,696.6	7,715.6	7,715.6	49.3	154.3	90.26	-1,672.1	479.1	678.4	475.9	202.53	3.350			
10,100.0	7,696.7	7,715.7	7,715.7	51.1	154.3	90.31	-1,672.1	479.1	774.7	570.3	204.33	3.791			
10,200.0	7,696.9	7,715.9	7,715.9	52.8	154.3	90.35	-1,672.1	479.1	871.8	665.6	206.14	4.229			
10,300.0	7,697.0	7,716.0	7,716.0	54.6	154.3	90.39	-1,672.1	479.1	969.5	761.5	207.95	4.662			
10,400.0	7,697.1	7,716.1	7,716.1	56.4	154.3	90.43	-1,672.1	479.1	1,067.6	857.8	209.77	5.089			
10,500.0	7,697.3	7,716.3	7,716.3	58.2	154.3	90.47	-1,672.1	479.1	1,166.0	954.4	211.60	5.511			
10,600.0	7,697.4	7,716.4	7,716.4	60.0	154.3	90.51	-1,672.1	479.1	1,264.7	1,051.3	213.43	5.926			
10,700.0	7,697.5	7,716.5	7,716.5	61.8	154.3	90.55	-1,672.1	479.1	1,363.6	1,148.3	215.27	6.334			
10,800.0	7,697.7	7,716.7	7,716.7	63.6	154.3	90.59	-1,672.1	479.1	1,462.6	1,245.5	217.12	6.737			
10,900.0	7,697.8	7,716.8	7,716.8	65.5	154.3	90.63	-1,672.1	479.1	1,561.8	1,342.8	218.96	7.133			
11,000.0	7,698.0	7,717.0	7,717.0	67.3	154.3	90.67	-1,672.1	479.1	1,661.0	1,440.2	220.81	7.522			
11,100.0	7,698.1	7,717.1	7,717.1	69.1	154.3	90.71	-1,672.1	479.1	1,760.4	1,537.7	222.67	7.906			
11,200.0	7,698.2	7,717.2	7,717.2	71.0	154.3	90.75	-1,672.1	479.1	1,859.8	1,635.3	224.53	8.283			
11,300.0	7,698.4	7,717.4	7,717.4	72.8	154.3	90.79	-1,672.1	479.1	1,959.3	1,732.9	226.39	8.654			
11,400.0	7,698.5	7,717.5	7,717.5	74.6	154.4	90.84	-1,672.1	479.1	2,058.8	1,830.5	228.25	9.020			
11,500.0	7,698.7	7,717.7	7,717.7	76.5	154.4	90.88	-1,672.1	479.1	2,158.3	1,928.2	230.12	9.379			
11,600.0	7,698.8	7,717.8	7,717.8	78.3	154.4	90.92	-1,672.1	479.1	2,258.0	2,026.0	231.98	9.733			
11,700.0	7,698.9	7,717.9	7,717.9	80.2	154.4	90.96	-1,672.1	479.1	2,357.6	2,123.7	233.86	10.081			
11,800.0	7,699.1	7,718.1	7,718.1	82.0	154.4	91.00	-1,672.1	479.1	2,457.3	2,221.5	235.73	10.424			
11,900.0	7,699.2	7,718.2	7,718.2	83.9	154.4	91.04	-1,672.1	479.1	2,556.9	2,319.3	237.60	10.761			
12,000.0	7,699.4	7,718.4	7,718.4	85.8	154.4	91.08	-1,672.1	479.1	2,656.7	2,417.2	239.48	11.094			
12,100.0	7,699.5	7,718.5	7,718.5	87.6	154.4	91.12	-1,672.1	479.1	2,756.4	2,515.0	241.36	11.420			
12,200.0	7,699.6	7,718.6	7,718.6	89.5	154.4	91.16	-1,672.1	479.1	2,856.2	2,612.9	243.24	11.742			
12,300.0	7,699.8	7,718.8	7,718.8	91.4	154.4	91.20	-1,672.1	479.1	2,955.9	2,710.8	245.12	12.059			
12,400.0	7,699.9	7,718.9	7,718.9	93.2	154.4	91.24	-1,672.1	479.1	3,055.7	2,808.7	247.00	12.371			
12,500.0	7,700.1	7,719.1	7,719.1	95.1	154.4	91.28	-1,672.1	479.1	3,155.5	2,906.6	248.88	12.679			
12,600.0	7,700.2	7,719.2	7,719.2	97.0	154.4	91.32	-1,672.1	479.1	3,255.3	3,004.6	250.77	12.982			
12,700.0	7,700.3	7,719.3	7,719.3	98.8	154.4	91.37	-1,672.1	479.1	3,355.1	3,102.5	252.65	13.280			
12,800.0	7,700.5	7,719.5	7,719.5	100.7	154.4	91.41	-1,672.1	479.1	3,455.0	3,200.4	254.54	13.574			
12,900.0	7,700.6	7,719.6	7,719.6	102.6	154.4	91.45	-1,672.1	479.1	3,554.8	3,298.4	256.42	13.863			
13,000.0	7,700.8	7,719.8	7,719.8	104.5	154.4	91.49	-1,672.1	479.1	3,654.7	3,396.4	258.31	14.148			
13,100.0	7,700.9	7,719.9	7,719.9	106.4	154.4	91.53	-1,672.1	479.1	3,754.5	3,494.3	260.20	14.429			
13,200.0	7,701.0	7,720.0	7,720.0	108.2	154.4	91.57	-1,672.1	479.1	3,854.4	3,592.3	262.09	14.706			
13,300.0	7,701.2	7,720.2	7,720.2	110.1	154.4	91.61	-1,672.1	479.1	3,954.3	3,690.3	263.98	14.980			
13,400.0	7,701.3	7,720.3	7,720.3	112.0	154.4	91.65	-1,672.1	479.1	4,054.2	3,788.3	265.87	15.249			
13,500.0	7,701.5	7,720.5	7,720.5	113.9	154.4	91.69	-1,672.1	479.1	4,154.0	3,886.3	267.76	15.514			
13,600.0	7,701.6	7,720.6	7,720.6	115.8	154.4	91.73	-1,672.1	479.1	4,253.9	3,984.3	269.65	15.776			
13,700.0	7,701.7	7,720.7	7,720.7	117.7	154.4	91.77	-1,672.1	479.1	4,353.8	4,082.3	271.55	16.034			
13,800.0	7,701.9	7,720.9	7,720.9	119.6	154.4	91.81	-1,672.1	479.1	4,453.7	4,180.3	273.44	16.288			
13,900.0	7,702.0	7,721.0	7,721.0	121.4	154.4	91.85	-1,672.1	479.1	4,553.6	4,278.3	275.33	16.539			
14,000.0	7,702.2	7,721.2	7,721.2	123.3	154.4	91.89	-1,672.1	479.1	4,653.5	4,376.3	277.22	16.786			
14,100.0	7,702.3	7,721.3	7,721.3	125.2	154.4	91.94	-1,672.1	479.1	4,753.5	4,474.3	279.12	17.030			
14,200.0	7,702.4	7,721.4	7,721.4	127.1	154.4	91.98	-1,672.1	479.1	4,853.4	4,572.4	281.01	17.271			
14,300.0	7,702.6	7,721.6	7,721.6	129.0	154.4	92.02	-1,672.1	479.1	4,953.3	4,670.4	282.91	17.509			
14,400.0	7,702.7	7,721.7	7,721.7	130.9	154.4	92.06	-1,672.1	479.1	5,053.2	4,768.4	284.80	17.743			
14,500.0	7,702.9	7,721.9	7,721.9	132.8	154.4	92.10	-1,672.1	479.1	5,153.1	4,866.4	286.70	17.974			
14,600.0	7,703.0	7,722.0	7,722.0	134.7	154.4	92.14	-1,672.1	479.1	5,253.1	4,964.5	288.59	18.202			
14,603.6	7,703.0	7,722.0	7,722.0	134.7	154.4	92.14	-1,672.1	479.1	5,256.7	4,968.0	288.66	18.210			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 5151-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
0.0	0.0	48.0	48.0	0.0	1.0	177.10	-4,291.7	217.7	4,297.2	4,296.2	0.96	4,475.309			
100.0	100.0	148.0	148.0	0.1	3.0	177.10	-4,291.7	217.7	4,297.2	4,294.1	3.07	1,398.560			
200.0	200.0	248.0	248.0	0.3	5.0	177.10	-4,291.7	217.7	4,297.2	4,291.9	5.30	811.197			
300.0	300.0	348.0	348.0	0.6	7.0	177.10	-4,291.7	217.7	4,297.2	4,289.7	7.52	571.274			
400.0	400.0	448.0	448.0	0.8	9.0	177.10	-4,291.7	217.7	4,297.2	4,287.4	9.75	440.879			
500.0	500.0	548.0	548.0	1.0	11.0	177.10	-4,291.7	217.7	4,297.2	4,285.2	11.97	358.947			
600.0	600.0	648.0	648.0	1.2	13.0	177.10	-4,291.7	217.7	4,297.2	4,283.0	14.20	302.696			
700.0	700.0	748.0	748.0	1.5	15.0	177.10	-4,291.7	217.7	4,297.2	4,280.8	16.42	261.686			
800.0	800.0	848.0	848.0	1.7	17.0	177.10	-4,291.7	217.7	4,297.2	4,278.5	18.65	230.462			
900.0	900.0	948.0	948.0	1.9	19.0	177.10	-4,291.7	217.7	4,297.2	4,276.3	20.87	205.896			
1,000.0	1,000.0	1,048.0	1,048.0	2.1	21.0	177.10	-4,291.7	217.7	4,297.2	4,274.1	23.10	186.062			
1,100.0	1,100.0	1,148.0	1,148.0	2.4	23.0	177.10	-4,291.7	217.7	4,297.2	4,271.9	25.32	169.714			
1,200.0	1,200.0	1,248.0	1,248.0	2.6	25.0	177.10	-4,291.7	217.7	4,297.2	4,269.6	27.54	156.006			
1,300.0	1,300.0	1,348.0	1,348.0	2.8	27.0	107.57	-4,291.7	217.7	4,297.2	4,268.0	29.76	144.415			
1,400.0	1,399.8	1,447.8	1,447.8	3.0	29.0	107.61	-4,291.7	217.7	4,299.3	4,267.3	31.96	134.503			
1,500.0	1,499.5	1,547.5	1,547.5	3.2	30.9	107.67	-4,291.7	217.7	4,301.9	4,267.8	34.17	125.898			
1,600.0	1,598.7	1,646.7	1,646.7	3.5	32.9	107.75	-4,291.7	217.7	4,305.7	4,269.3	36.38	118.353			
1,700.0	1,697.5	1,745.5	1,745.5	3.7	34.9	107.86	-4,291.7	217.7	4,310.5	4,271.9	38.60	111.675			
1,800.0	1,796.0	1,844.0	1,844.0	4.0	36.9	108.07	-4,291.7	217.7	4,315.9	4,275.1	40.85	105.647			
1,900.0	1,894.4	1,942.4	1,942.4	4.3	38.8	108.29	-4,291.7	217.7	4,321.4	4,278.3	43.12	100.215			
2,000.0	1,992.9	2,040.9	2,040.9	4.7	40.8	108.50	-4,291.7	217.7	4,326.9	4,281.5	45.40	95.302			
2,100.0	2,091.4	2,139.4	2,139.4	5.0	42.8	108.72	-4,291.7	217.7	4,332.5	4,284.8	47.69	90.842			
2,200.0	2,189.9	2,237.9	2,237.9	5.3	44.8	108.93	-4,291.7	217.7	4,338.2	4,288.2	49.99	86.780			
2,300.0	2,288.4	2,336.4	2,336.4	5.7	46.7	109.14	-4,291.7	217.7	4,343.9	4,291.6	52.30	83.065			
2,400.0	2,386.9	2,434.9	2,434.9	6.0	48.7	109.35	-4,291.7	217.7	4,349.7	4,295.1	54.60	79.658			
2,500.0	2,485.4	2,533.4	2,533.4	6.4	50.7	109.57	-4,291.7	217.7	4,355.6	4,298.6	56.92	76.523			
2,600.0	2,583.9	2,631.9	2,631.9	6.8	52.6	109.78	-4,291.7	217.7	4,361.5	4,302.2	59.23	73.630			
2,700.0	2,682.4	2,730.4	2,730.4	7.1	54.6	109.99	-4,291.7	217.7	4,367.4	4,305.9	61.55	70.953			
2,800.0	2,780.9	2,828.9	2,828.9	7.5	56.6	110.20	-4,291.7	217.7	4,373.5	4,309.6	63.88	68.468			
2,900.0	2,879.3	2,927.3	2,927.3	7.9	58.5	110.41	-4,291.7	217.7	4,379.6	4,313.4	66.20	66.157			
3,000.0	2,977.8	3,025.8	3,025.8	8.3	60.5	110.62	-4,291.7	217.7	4,385.7	4,317.2	68.52	64.003			
3,100.0	3,076.3	3,124.3	3,124.3	8.6	62.5	110.83	-4,291.7	217.7	4,391.9	4,321.1	70.85	61.989			
3,200.0	3,174.8	3,222.8	3,222.8	9.0	64.5	111.03	-4,291.7	217.7	4,398.2	4,325.0	73.18	60.104			
3,300.0	3,273.3	3,321.3	3,321.3	9.4	66.4	111.24	-4,291.7	217.7	4,404.5	4,329.0	75.50	58.335			
3,400.0	3,371.8	3,419.8	3,419.8	9.8	68.4	111.45	-4,291.7	217.7	4,410.9	4,333.1	77.83	56.672			
3,500.0	3,470.3	3,518.3	3,518.3	10.2	70.4	111.66	-4,291.7	217.7	4,417.3	4,337.2	80.16	55.106			
3,600.0	3,568.8	3,616.8	3,616.8	10.5	72.3	111.86	-4,291.7	217.7	4,423.8	4,341.4	82.49	53.629			
3,700.0	3,667.3	3,715.3	3,715.3	10.9	74.3	112.07	-4,291.7	217.7	4,430.4	4,345.6	84.82	52.234			
3,800.0	3,765.7	3,813.7	3,813.7	11.3	76.3	112.27	-4,291.7	217.7	4,437.0	4,349.9	87.15	50.914			
3,900.0	3,864.2	3,912.2	3,912.2	11.7	78.2	112.47	-4,291.7	217.7	4,443.7	4,354.2	89.48	49.663			
4,000.0	3,962.7	4,010.7	4,010.7	12.1	80.2	112.68	-4,291.7	217.7	4,450.4	4,358.6	91.81	48.477			
4,100.0	4,061.2	4,109.2	4,109.2	12.5	82.2	112.88	-4,291.7	217.7	4,457.2	4,363.1	94.13	47.350			
4,200.0	4,159.7	4,207.7	4,207.7	12.9	84.2	113.08	-4,291.7	217.7	4,464.1	4,367.6	96.46	46.278			
4,300.0	4,258.2	4,306.2	4,306.2	13.2	86.1	113.28	-4,291.7	217.7	4,471.0	4,372.2	98.79	45.257			
4,400.0	4,356.7	4,404.7	4,404.7	13.6	88.1	113.49	-4,291.7	217.7	4,477.9	4,376.8	101.12	44.284			
4,500.0	4,455.2	4,503.2	4,503.2	14.0	90.1	113.69	-4,291.7	217.7	4,484.9	4,381.5	103.45	43.356			
4,600.0	4,553.7	4,601.7	4,601.7	14.4	92.0	113.89	-4,291.7	217.7	4,492.0	4,386.2	105.77	42.469			
4,700.0	4,652.2	4,700.2	4,700.2	14.8	94.0	114.08	-4,291.7	217.7	4,499.1	4,391.1	108.10	41.621			
4,800.0	4,750.6	4,798.6	4,798.6	15.2	96.0	114.28	-4,291.7	217.7	4,506.3	4,395.9	110.43	40.809			
4,900.0	4,849.1	4,897.1	4,897.1	15.6	97.9	114.48	-4,291.7	217.7	4,513.6	4,400.8	112.75	40.031			
5,000.0	4,947.6	4,995.6	4,995.6	16.0	99.9	114.68	-4,291.7	217.7	4,520.9	4,405.8	115.08	39.286			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 5151-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
5,100.0	5,046.1	5,094.1	5,094.1	16.4	101.9	114.87	-4,291.7	217.7	4,528.2	4,410.8	117.40	38.571			
5,200.0	5,144.6	5,151.0	5,151.0	16.8	103.0	114.99	-4,291.7	217.7	4,535.8	4,416.9	118.90	38.148			
5,300.0	5,243.1	5,151.0	5,151.0	17.2	103.0	114.99	-4,291.7	217.7	4,545.2	4,426.0	119.27	38.107			
5,400.0	5,341.6	5,151.0	5,151.0	17.5	103.0	115.07	-4,291.7	217.7	4,556.7	4,437.1	119.66	38.080			
5,500.0	5,440.6	5,151.0	5,151.0	17.8	103.0	115.30	-4,291.7	217.7	4,569.2	4,449.2	120.00	38.078 SF			
5,600.0	5,540.0	5,151.0	5,151.0	18.0	103.0	115.54	-4,291.7	217.7	4,582.3	4,462.1	120.27	38.099			
5,700.0	5,639.7	5,151.0	5,151.0	18.2	103.0	115.79	-4,291.7	217.7	4,596.1	4,475.6	120.50	38.144			
5,800.0	5,739.7	5,151.0	5,151.0	18.4	103.0	116.05	-4,291.7	217.7	4,610.5	4,489.9	120.66	38.211			
5,900.0	5,839.6	5,151.0	5,151.0	18.5	103.0	-174.25	-4,291.7	217.7	4,625.7	4,504.9	120.79	38.295			
6,000.0	5,939.6	5,151.0	5,151.0	18.7	103.0	-174.25	-4,291.7	217.7	4,642.7	4,521.7	120.95	38.386			
6,100.0	6,039.6	5,151.0	5,151.0	18.8	103.0	-174.25	-4,291.7	217.7	4,661.7	4,540.6	121.11	38.493			
6,200.0	6,139.6	5,151.0	5,151.0	19.0	103.0	-174.25	-4,291.7	217.7	4,682.8	4,561.6	121.27	38.616			
6,300.0	6,239.6	5,151.0	5,151.0	19.1	103.0	-174.25	-4,291.7	217.7	4,706.0	4,584.6	121.43	38.756			
6,400.0	6,339.6	5,151.0	5,151.0	19.3	103.0	-174.25	-4,291.7	217.7	4,731.1	4,609.5	121.59	38.911			
6,500.0	6,439.6	5,151.0	5,151.0	19.5	103.0	-174.25	-4,291.7	217.7	4,758.2	4,636.5	121.75	39.081			
6,600.0	6,539.6	5,151.0	5,151.0	19.6	103.0	-174.25	-4,291.7	217.7	4,787.3	4,665.4	121.92	39.267			
6,700.0	6,639.6	5,151.0	5,151.0	19.8	103.0	-174.25	-4,291.7	217.7	4,818.3	4,696.2	122.08	39.467			
6,800.0	6,739.6	5,151.0	5,151.0	19.9	103.0	-174.25	-4,291.7	217.7	4,851.1	4,728.8	122.25	39.681			
6,900.0	6,839.6	5,151.0	5,151.0	20.1	103.0	-174.25	-4,291.7	217.7	4,885.7	4,763.3	122.42	39.910			
7,000.0	6,939.6	5,151.0	5,151.0	20.3	103.0	5.72	-4,291.7	217.7	4,922.1	4,799.5	122.57	40.157			
7,100.0	7,039.3	5,151.0	5,151.0	20.4	103.0	5.48	-4,291.7	217.7	4,953.0	4,831.6	121.44	40.785			
7,200.0	7,137.0	5,151.0	5,151.0	20.4	103.0	5.34	-4,291.7	217.7	4,973.2	4,854.9	118.29	42.041			
7,300.0	7,231.2	5,151.0	5,151.0	20.5	103.0	5.27	-4,291.7	217.7	4,982.5	4,869.3	113.20	44.017			
7,400.0	7,320.3	5,151.0	5,151.0	20.5	103.0	5.29	-4,291.7	217.7	4,980.8	4,874.5	106.25	46.877			
7,500.0	7,402.7	5,151.0	5,151.0	20.5	103.0	5.37	-4,291.7	217.7	4,968.1	4,870.5	97.62	50.893			
7,600.0	7,477.0	5,151.0	5,151.0	20.5	103.0	5.55	-4,291.7	217.7	4,944.5	4,857.0	87.49	56.515			
7,700.0	7,541.9	5,151.0	5,151.0	20.6	103.0	5.82	-4,291.7	217.7	4,910.3	4,834.2	76.13	64.499			
7,800.0	7,596.4	5,151.0	5,151.0	20.7	103.0	6.21	-4,291.7	217.7	4,865.9	4,802.0	63.88	76.177			
7,900.0	7,639.5	5,151.0	5,151.0	21.0	103.0	6.76	-4,291.7	217.7	4,811.8	4,760.5	51.22	93.938			
8,000.0	7,670.4	5,151.0	5,151.0	21.4	103.0	7.52	-4,291.7	217.7	4,748.4	4,709.4	39.04	121.640			
8,100.0	7,688.7	5,151.0	5,151.0	21.9	103.0	8.60	-4,291.7	217.7	4,676.7	4,647.2	29.52	158.438			
8,200.0	7,694.1	5,151.0	5,151.0	22.7	103.0	10.00	-4,291.7	217.7	4,597.5	4,569.6	27.87	164.946			
8,300.0	7,694.2	5,151.0	5,151.0	23.6	103.0	10.00	-4,291.7	217.7	4,516.0	4,487.7	28.28	159.703			
8,400.0	7,694.3	5,151.0	5,151.0	24.7	103.0	10.00	-4,291.7	217.7	4,435.2	4,406.4	28.72	154.400			
8,500.0	7,694.5	5,151.0	5,151.0	25.8	103.0	10.00	-4,291.7	217.7	4,355.1	4,325.9	29.21	149.093			
8,600.0	7,694.6	5,151.0	5,151.0	27.1	103.0	10.00	-4,291.7	217.7	4,276.0	4,246.2	29.73	143.827			
8,700.0	7,694.8	5,151.0	5,151.0	28.4	103.0	10.00	-4,291.7	217.7	4,197.7	4,167.4	30.28	138.636			
8,800.0	7,694.9	5,151.0	5,151.0	29.8	103.0	10.00	-4,291.7	217.7	4,120.4	4,089.5	30.85	133.550			
8,900.0	7,695.0	5,151.0	5,151.0	31.2	103.0	10.00	-4,291.7	217.7	4,044.0	4,012.6	31.45	128.590			
9,000.0	7,695.2	5,151.0	5,151.0	32.7	103.0	10.00	-4,291.7	217.7	3,968.7	3,936.7	32.06	123.773			
9,100.0	7,695.3	5,151.0	5,151.0	34.3	103.0	10.00	-4,291.7	217.7	3,894.5	3,861.8	32.70	119.109			
9,200.0	7,695.5	5,151.0	5,151.0	35.8	103.0	10.00	-4,291.7	217.7	3,821.5	3,788.2	33.35	114.606			
9,300.0	7,695.6	5,151.0	5,151.0	37.5	103.0	10.00	-4,291.7	217.7	3,749.8	3,715.8	34.01	110.268			
9,400.0	7,695.7	5,151.0	5,151.0	39.1	103.0	10.00	-4,291.7	217.7	3,679.3	3,644.7	34.68	106.099			
9,500.0	7,695.9	5,151.0	5,151.0	40.7	103.0	10.00	-4,291.7	217.7	3,610.3	3,574.9	35.36	102.098			
9,600.0	7,696.0	5,151.0	5,151.0	42.4	103.0	10.00	-4,291.7	217.7	3,542.7	3,506.7	36.05	98.264			
9,700.0	7,696.2	5,151.0	5,151.0	44.1	103.0	10.00	-4,291.7	217.7	3,476.7	3,440.0	36.75	94.597			
9,800.0	7,696.3	5,151.0	5,151.0	45.8	103.0	10.00	-4,291.7	217.7	3,412.4	3,374.9	37.46	91.094			
9,900.0	7,696.4	5,151.0	5,151.0	47.6	103.0	10.00	-4,291.7	217.7	3,349.8	3,311.6	38.17	87.751			
10,000.0	7,696.6	5,151.0	5,151.0	49.3	103.0	10.00	-4,291.7	217.7	3,289.0	3,250.1	38.89	84.566			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 5151-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
10,100.0	7,696.7	5,151.0	5,151.0	51.1	103.0	10.00	-4,291.7	217.7	3,230.2	3,190.6	39.62	81.535			
10,200.0	7,696.9	5,151.0	5,151.0	52.8	103.0	10.00	-4,291.7	217.7	3,173.5	3,133.1	40.35	78.654			
10,300.0	7,697.0	5,151.0	5,151.0	54.6	103.0	10.00	-4,291.7	217.7	3,118.9	3,077.8	41.08	75.922			
10,400.0	7,697.1	5,151.0	5,151.0	56.4	103.0	10.00	-4,291.7	217.7	3,066.7	3,024.8	41.82	73.333			
10,500.0	7,697.3	5,151.0	5,151.0	58.2	103.0	10.00	-4,291.7	217.7	3,016.8	2,974.2	42.56	70.884			
10,600.0	7,697.4	5,151.0	5,151.0	60.0	103.0	10.00	-4,291.7	217.7	2,969.5	2,926.2	43.30	68.573			
10,700.0	7,697.5	5,151.0	5,151.0	61.8	103.0	10.00	-4,291.7	217.7	2,924.8	2,880.7	44.05	66.395			
10,800.0	7,697.7	5,151.0	5,151.0	63.6	103.0	10.00	-4,291.7	217.7	2,882.9	2,838.1	44.80	64.349			
10,900.0	7,697.8	5,151.0	5,151.0	65.5	103.0	10.00	-4,291.7	217.7	2,843.9	2,798.4	45.55	62.430			
11,000.0	7,698.0	5,151.0	5,151.0	67.3	103.0	10.00	-4,291.7	217.7	2,807.9	2,761.6	46.31	60.635			
11,100.0	7,698.1	5,151.0	5,151.0	69.1	103.0	10.00	-4,291.7	217.7	2,775.1	2,728.0	47.07	58.962			
11,200.0	7,698.2	5,151.0	5,151.0	71.0	103.0	10.00	-4,291.7	217.7	2,745.5	2,697.7	47.82	57.408			
11,300.0	7,698.4	5,151.0	5,151.0	72.8	103.0	10.00	-4,291.7	217.7	2,719.3	2,670.7	48.59	55.970			
11,400.0	7,698.5	5,151.0	5,151.0	74.6	103.0	10.00	-4,291.7	217.7	2,696.5	2,647.2	49.35	54.644			
11,500.0	7,698.7	5,151.0	5,151.0	76.5	103.0	10.00	-4,291.7	217.7	2,677.3	2,627.2	50.11	53.427			
11,600.0	7,698.8	5,151.0	5,151.0	78.3	103.0	10.00	-4,291.7	217.7	2,661.7	2,610.8	50.88	52.317			
11,700.0	7,698.9	5,151.0	5,151.0	80.2	103.0	10.00	-4,291.7	217.7	2,649.8	2,598.1	51.64	51.309			
11,800.0	7,699.1	5,151.0	5,151.0	82.0	103.0	10.00	-4,291.7	217.7	2,641.6	2,589.2	52.41	50.401			
11,900.0	7,699.2	5,151.0	5,151.0	83.9	103.0	10.00	-4,291.7	217.7	2,637.2	2,584.0	53.18	49.589			
11,966.6	7,699.3	5,151.0	5,151.0	85.1	103.0	10.00	-4,291.7	217.7	2,636.3	2,582.6	53.69	49.100 CC			
12,000.0	7,699.4	5,151.0	5,151.0	85.8	103.0	10.00	-4,291.7	217.7	2,636.6	2,582.6	53.95	48.869 ES			
12,100.0	7,699.5	5,151.0	5,151.0	87.6	103.0	10.00	-4,291.7	217.7	2,639.7	2,585.0	54.72	48.238			
12,200.0	7,699.6	5,151.0	5,151.0	89.5	103.0	10.00	-4,291.7	217.7	2,646.7	2,591.2	55.49	47.692			
12,300.0	7,699.8	5,151.0	5,151.0	91.4	103.0	10.00	-4,291.7	217.7	2,657.3	2,601.1	56.27	47.227			
12,400.0	7,699.9	5,151.0	5,151.0	93.2	103.0	10.00	-4,291.7	217.7	2,671.7	2,614.7	57.04	46.838			
12,500.0	7,700.1	5,151.0	5,151.0	95.1	103.0	10.00	-4,291.7	217.7	2,689.8	2,632.0	57.82	46.522			
12,600.0	7,700.2	5,151.0	5,151.0	97.0	103.0	10.00	-4,291.7	217.7	2,711.4	2,652.8	58.59	46.275			
12,700.0	7,700.3	5,151.0	5,151.0	98.8	103.0	10.00	-4,291.7	217.7	2,736.5	2,677.1	59.37	46.093			
12,800.0	7,700.5	5,151.0	5,151.0	100.7	103.0	10.00	-4,291.7	217.7	2,764.9	2,704.8	60.15	45.971			
12,900.0	7,700.6	5,151.0	5,151.0	102.6	103.0	10.00	-4,291.7	217.7	2,796.7	2,735.8	60.92	45.905			
13,000.0	7,700.8	5,151.0	5,151.0	104.5	103.0	10.00	-4,291.7	217.7	2,831.7	2,770.0	61.70	45.893			
13,100.0	7,700.9	5,151.0	5,151.0	106.4	103.0	10.00	-4,291.7	217.7	2,869.7	2,807.2	62.48	45.929			
13,200.0	7,701.0	5,151.0	5,151.0	108.2	103.0	10.00	-4,291.7	217.7	2,910.6	2,847.4	63.26	46.010			
13,300.0	7,701.2	5,151.0	5,151.0	110.1	103.0	10.00	-4,291.7	217.7	2,954.4	2,890.3	64.04	46.134			
13,400.0	7,701.3	5,151.0	5,151.0	112.0	103.0	10.00	-4,291.7	217.7	3,000.8	2,936.0	64.82	46.295			
13,500.0	7,701.5	5,151.0	5,151.0	113.9	103.0	10.00	-4,291.7	217.7	3,049.9	2,984.3	65.60	46.491			
13,600.0	7,701.6	5,151.0	5,151.0	115.8	103.0	10.00	-4,291.7	217.7	3,101.4	3,035.0	66.38	46.720			
13,700.0	7,701.7	5,151.0	5,151.0	117.7	103.0	10.00	-4,291.7	217.7	3,155.2	3,088.0	67.16	46.977			
13,800.0	7,701.9	5,151.0	5,151.0	119.6	103.0	10.00	-4,291.7	217.7	3,211.2	3,143.3	67.95	47.261			
13,900.0	7,702.0	5,151.0	5,151.0	121.4	103.0	10.00	-4,291.7	217.7	3,269.3	3,200.6	68.73	47.568			
14,000.0	7,702.2	5,151.0	5,151.0	123.3	103.0	10.00	-4,291.7	217.7	3,329.4	3,259.9	69.51	47.898			
14,100.0	7,702.3	5,151.0	5,151.0	125.2	103.0	10.00	-4,291.7	217.7	3,391.4	3,321.1	70.30	48.246			
14,200.0	7,702.4	5,151.0	5,151.0	127.1	103.0	10.00	-4,291.7	217.7	3,455.2	3,384.1	71.08	48.611			
14,300.0	7,702.6	5,151.0	5,151.0	129.0	103.0	10.00	-4,291.7	217.7	3,520.7	3,448.8	71.86	48.992			
14,400.0	7,702.7	5,151.0	5,151.0	130.9	103.0	10.00	-4,291.7	217.7	3,587.8	3,515.1	72.65	49.386			
14,500.0	7,702.9	5,151.0	5,151.0	132.8	103.0	10.00	-4,291.7	217.7	3,656.3	3,582.9	73.43	49.792			
14,600.0	7,703.0	5,151.0	5,151.0	134.7	103.0	10.00	-4,291.7	217.7	3,726.3	3,652.1	74.22	50.209			
14,603.6	7,703.0	5,151.0	5,151.0	134.7	103.0	10.00	-4,291.7	217.7	3,728.8	3,654.6	74.24	50.224			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-58.8	58.8						
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-58.8	58.8	58.6	0.22	261.732			
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-58.8	58.8	58.2	0.67	87.244			
300.0	300.0	300.0	300.0	0.6	0.6	-90.01	0.0	-58.8	58.8	57.7	1.12	52.346			
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-58.8	58.8	57.3	1.57	37.390			
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-58.8	58.8	56.8	2.02	29.081			
600.0	600.0	600.0	600.0	1.2	1.2	-90.01	0.0	-58.8	58.8	56.4	2.47	23.794			
700.0	700.0	700.0	700.0	1.5	1.5	-90.01	0.0	-58.8	58.8	55.9	2.92	20.133			
800.0	800.0	800.0	800.0	1.7	1.7	-90.01	0.0	-58.8	58.8	55.5	3.37	17.449			
900.0	900.0	900.0	900.0	1.9	1.9	-90.01	0.0	-58.8	58.8	55.0	3.82	15.396			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.01	0.0	-58.8	58.8	54.6	4.27	13.775			
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.01	0.0	-58.8	58.8	54.1	4.72	12.463			
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.01	0.0	-58.8	58.8	53.7	5.17	11.380 CC, ES			
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-160.12	0.0	-58.8	60.5	54.9	5.61	10.782			
1,400.0	1,399.8	1,399.8	1,399.8	3.0	3.0	-161.64	0.0	-58.8	65.4	59.4	6.04	10.838			
1,500.0	1,499.5	1,499.5	1,499.5	3.2	3.3	-163.73	0.0	-58.8	73.7	67.3	6.46	11.417			
1,600.0	1,598.7	1,598.7	1,598.7	3.5	3.5	-165.96	0.0	-58.8	85.5	78.6	6.88	12.435			
1,700.0	1,697.5	1,697.5	1,697.5	3.7	3.7	-168.05	0.0	-58.8	100.8	93.5	7.29	13.822			
1,800.0	1,796.0	1,796.0	1,796.0	4.0	3.9	-169.80	0.0	-58.8	117.8	110.0	7.73	15.235			
1,900.0	1,894.4	1,894.4	1,894.4	4.3	4.1	-171.10	0.0	-58.8	134.8	126.7	8.17	16.496			
2,000.0	1,992.9	1,992.9	1,992.9	4.7	4.4	-172.11	0.0	-58.8	152.0	143.4	8.62	17.626			
2,100.0	2,091.4	2,094.0	2,094.0	5.0	4.6	-172.47	1.5	-58.4	168.4	159.4	9.08	18.558			
2,200.0	2,189.9	2,195.8	2,195.7	5.3	4.8	-171.76	6.5	-57.1	183.3	173.7	9.53	19.223			
2,300.0	2,288.4	2,297.8	2,297.3	5.7	5.1	-170.21	14.9	-54.8	196.6	186.6	10.00	19.656			
2,400.0	2,386.9	2,398.8	2,397.5	6.0	5.3	-168.02	26.6	-51.7	208.7	198.2	10.48	19.908			
2,500.0	2,485.4	2,497.8	2,495.7	6.4	5.5	-165.93	38.7	-48.5	220.7	209.7	10.97	20.112			
2,600.0	2,583.9	2,596.7	2,593.9	6.8	5.8	-164.06	50.9	-45.2	233.0	221.5	11.48	20.297			
2,700.0	2,682.4	2,695.7	2,692.0	7.1	6.0	-162.37	63.1	-42.0	245.5	233.5	12.00	20.463			
2,800.0	2,780.9	2,794.7	2,790.2	7.5	6.3	-160.85	75.2	-38.8	258.2	245.7	12.53	20.612			
2,900.0	2,879.3	2,893.6	2,888.4	7.9	6.5	-159.47	87.4	-35.5	271.1	258.0	13.07	20.744			
3,000.0	2,977.8	2,992.6	2,986.5	8.3	6.8	-158.21	99.5	-32.3	284.1	270.5	13.62	20.862			
3,100.0	3,076.3	3,091.6	3,084.7	8.6	7.1	-157.07	111.7	-29.0	297.2	283.1	14.18	20.968			
3,200.0	3,174.8	3,190.5	3,182.8	9.0	7.4	-156.02	123.9	-25.8	310.5	295.7	14.74	21.061			
3,300.0	3,273.3	3,289.5	3,281.0	9.4	7.6	-155.06	136.0	-22.5	323.8	308.5	15.31	21.145			
3,400.0	3,371.8	3,388.5	3,379.2	9.8	7.9	-154.18	148.2	-19.3	337.2	321.4	15.89	21.219			
3,500.0	3,470.3	3,487.4	3,477.3	10.2	8.2	-153.36	160.3	-16.0	350.7	334.3	16.48	21.286			
3,600.0	3,568.8	3,586.4	3,575.5	10.5	8.5	-152.60	172.5	-12.8	364.3	347.2	17.07	21.346			
3,700.0	3,667.3	3,685.4	3,673.7	10.9	8.8	-151.90	184.7	-9.5	377.9	360.3	17.66	21.400			
3,800.0	3,765.7	3,784.3	3,771.8	11.3	9.1	-151.24	196.8	-6.3	391.6	373.3	18.26	21.449			
3,900.0	3,864.2	3,883.3	3,870.0	11.7	9.4	-150.63	209.0	-3.1	405.3	386.4	18.86	21.493			
4,000.0	3,962.7	3,982.3	3,968.1	12.1	9.7	-150.06	221.1	0.2	419.1	399.6	19.46	21.533			
4,100.0	4,061.2	4,080.8	4,065.9	12.5	10.0	-149.55	233.1	3.4	432.9	412.8	20.06	21.584			
4,200.0	4,159.7	4,178.4	4,163.0	12.9	10.2	-149.41	242.5	5.9	446.9	426.4	20.57	21.725			
4,300.0	4,258.2	4,275.9	4,260.3	13.2	10.4	-149.69	248.7	7.5	461.3	440.3	21.04	21.924			
4,400.0	4,356.7	4,373.1	4,357.4	13.6	10.5	-150.35	251.7	8.3	476.1	454.6	21.47	22.176			
4,500.0	4,455.2	4,470.8	4,455.2	14.0	10.7	-151.30	252.0	8.4	491.2	469.3	21.87	22.460			
4,600.0	4,553.7	4,569.3	4,553.7	14.4	10.9	-152.24	252.0	8.4	506.5	484.2	22.29	22.724			
4,700.0	4,652.2	4,667.8	4,652.2	14.8	11.1	-153.12	252.0	8.4	521.9	499.2	22.71	22.977			
4,800.0	4,750.6	4,766.3	4,750.6	15.2	11.3	-153.95	252.0	8.4	537.5	514.3	23.14	23.225			
4,900.0	4,849.1	4,864.8	4,849.1	15.6	11.5	-154.74	252.0	8.4	553.1	529.5	23.57	23.466			
5,000.0	4,947.6	4,963.3	4,947.6	16.0	11.7	-155.48	252.0	8.4	568.9	544.9	24.00	23.702			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design										Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-203 - Wellbore #1 - Plan #2 (10-8-14)				Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
5,100.0	5,046.1	5,061.8	5,046.1	16.4	11.9	-156.18	252.0	8.4	584.7	560.3	24.43	23.931				
5,200.0	5,144.6	5,160.3	5,144.6	16.8	12.1	-156.85	252.0	8.4	600.6	575.8	24.87	24.154				
5,300.0	5,243.1	5,258.8	5,243.1	17.2	12.3	-157.48	252.0	8.4	616.6	591.3	25.30	24.371				
5,400.0	5,341.6	5,357.3	5,341.6	17.5	12.5	-158.11	252.0	8.4	632.4	606.7	25.75	24.563				
5,500.0	5,440.6	5,456.3	5,440.6	17.8	12.7	-158.68	252.0	8.4	645.7	619.6	26.18	24.669				
5,600.0	5,540.0	5,555.7	5,540.0	18.0	12.9	-159.10	252.0	8.4	655.8	629.2	26.58	24.672				
5,700.0	5,639.7	5,655.4	5,639.7	18.2	13.1	-159.37	252.0	8.4	662.7	635.7	26.96	24.579				
5,800.0	5,739.7	5,755.3	5,739.7	18.4	13.3	-159.51	252.0	8.4	666.3	639.0	27.32	24.392				
5,900.0	5,839.6	5,855.3	5,839.6	18.5	13.6	-90.00	252.0	8.4	666.9	639.2	27.67	24.100				
6,000.0	5,939.6	5,955.3	5,939.6	18.7	13.8	-90.00	252.0	8.4	666.9	638.8	28.07	23.757				
6,100.0	6,039.6	6,055.3	6,039.6	18.8	14.0	-90.00	252.0	8.4	666.9	638.4	28.47	23.423				
6,200.0	6,139.6	6,155.3	6,139.6	19.0	14.2	-90.00	252.0	8.4	666.9	638.0	28.87	23.097				
6,300.0	6,239.6	6,255.3	6,239.6	19.1	14.4	-90.00	252.0	8.4	666.9	637.6	29.28	22.780				
6,400.0	6,339.6	6,355.3	6,339.6	19.3	14.6	-90.00	252.0	8.4	666.9	637.2	29.68	22.469				
6,500.0	6,439.6	6,455.3	6,439.6	19.5	14.8	-90.00	252.0	8.4	666.9	636.8	30.09	22.166				
6,600.0	6,539.6	6,555.3	6,539.6	19.6	15.0	-90.00	252.0	8.4	666.9	636.4	30.49	21.871				
6,700.0	6,639.6	6,655.3	6,639.6	19.8	15.2	-90.00	252.0	8.4	666.9	636.0	30.90	21.582				
6,800.0	6,739.6	6,755.3	6,739.6	19.9	15.5	-90.00	252.0	8.4	666.9	635.6	31.31	21.300				
6,865.8	6,805.4	6,821.1	6,805.4	20.0	15.6	-90.00	252.0	8.4	666.9	635.3	31.58	21.118				
6,900.0	6,839.6	6,855.3	6,839.6	20.1	15.7	-90.00	252.0	8.4	666.9	635.2	31.72	21.025				
6,917.5	6,857.2	6,872.8	6,857.2	20.1	15.7	89.98	251.7	8.4	666.9	635.1	31.78	20.983				
7,000.0	6,939.6	6,954.7	6,938.7	20.3	15.8	89.41	245.1	8.4	666.9	634.9	32.02	20.825				
7,100.0	7,039.3	7,052.3	7,034.4	20.4	15.9	88.39	225.9	8.4	667.2	635.0	32.18	20.733				
7,200.0	7,137.0	7,148.5	7,125.5	20.4	15.9	87.40	195.3	8.4	667.6	635.3	32.25	20.702				
7,300.0	7,231.2	7,243.5	7,210.9	20.5	16.0	86.46	154.0	8.4	668.2	635.9	32.28	20.701				
7,400.0	7,320.3	7,337.2	7,289.6	20.5	16.0	85.59	103.2	8.4	668.9	636.6	32.32	20.694				
7,500.0	7,402.7	7,429.9	7,360.8	20.5	16.1	84.78	43.8	8.4	669.7	637.2	32.45	20.640				
7,600.0	7,477.0	7,521.7	7,423.6	20.5	16.2	84.07	-23.0	8.4	670.5	637.8	32.70	20.502				
7,700.0	7,541.9	7,612.7	7,477.6	20.6	16.5	83.45	-96.3	8.4	671.3	638.1	33.15	20.249				
7,800.0	7,596.4	7,703.1	7,522.1	20.7	16.8	82.93	-174.8	8.4	672.0	638.2	33.83	19.864				
7,900.0	7,639.5	7,792.9	7,557.0	21.0	17.4	82.53	-257.6	8.4	672.6	637.8	34.78	19.342				
8,000.0	7,670.4	7,882.4	7,581.8	21.4	18.0	82.24	-343.5	8.4	673.1	637.1	35.99	18.701				
8,100.0	7,688.7	7,971.7	7,596.3	21.9	18.8	82.07	-431.5	8.4	673.3	635.9	37.46	17.972				
8,200.0	7,694.1	8,062.0	7,600.6	22.7	19.7	82.02	-521.7	8.4	673.4	634.2	39.19	17.181				
8,300.0	7,694.2	8,162.0	7,600.8	23.6	20.8	82.03	-621.7	8.4	673.4	632.0	41.36	16.282				
8,400.0	7,694.3	8,262.0	7,601.0	24.7	22.0	82.03	-721.7	8.4	673.4	629.7	43.73	15.398				
8,500.0	7,694.5	8,362.0	7,601.2	25.8	23.3	82.04	-821.7	8.4	673.4	627.1	46.30	14.545				
8,600.0	7,694.6	8,462.0	7,601.4	27.1	24.7	82.04	-921.7	8.4	673.4	624.4	49.02	13.736				
8,700.0	7,694.8	8,562.0	7,601.6	28.4	26.2	82.05	-1,021.7	8.4	673.4	621.5	51.88	12.978				
8,800.0	7,694.9	8,662.0	7,601.8	29.8	27.7	82.06	-1,121.7	8.4	673.4	618.5	54.86	12.274				
8,900.0	7,695.0	8,762.0	7,602.0	31.2	29.3	82.06	-1,221.7	8.4	673.3	615.4	57.93	11.623				
9,000.0	7,695.2	8,862.0	7,602.3	32.7	30.9	82.07	-1,321.7	8.4	673.3	612.2	61.09	11.023				
9,100.0	7,695.3	8,962.0	7,602.5	34.3	32.5	82.07	-1,421.7	8.4	673.3	609.0	64.31	10.470				
9,200.0	7,695.5	9,062.0	7,602.7	35.8	34.2	82.08	-1,521.7	8.4	673.3	605.7	67.59	9.961				
9,300.0	7,695.6	9,162.0	7,602.9	37.5	35.9	82.09	-1,621.7	8.4	673.3	602.4	70.93	9.493				
9,400.0	7,695.7	9,262.0	7,603.1	39.1	37.6	82.09	-1,721.7	8.4	673.3	599.0	74.31	9.061				
9,500.0	7,695.9	9,362.0	7,603.3	40.7	39.3	82.10	-1,821.7	8.4	673.3	595.6	77.73	8.662				
9,600.0	7,696.0	9,462.0	7,603.5	42.4	41.0	82.10	-1,921.7	8.4	673.3	592.1	81.18	8.293				
9,700.0	7,696.2	9,562.0	7,603.7	44.1	42.8	82.11	-2,021.7	8.4	673.3	588.6	84.67	7.952				
9,800.0	7,696.3	9,662.0	7,603.9	45.8	44.6	82.12	-2,121.7	8.4	673.3	585.1	88.17	7.635				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,900.0	7,696.4	9,762.0	7,604.1	47.6	46.4	82.12	-2,221.7	8.4	673.2	581.5	91.71	7.341		
10,000.0	7,696.6	9,862.0	7,604.4	49.3	48.2	82.13	-2,321.7	8.4	673.2	578.0	95.26	7.067		
10,100.0	7,696.7	9,962.0	7,604.6	51.1	50.0	82.13	-2,421.7	8.4	673.2	574.4	98.83	6.812		
10,200.0	7,696.9	10,062.0	7,604.8	52.8	51.8	82.14	-2,521.7	8.4	673.2	570.8	102.42	6.573		
10,300.0	7,697.0	10,162.0	7,605.0	54.6	53.6	82.14	-2,621.7	8.4	673.2	567.2	106.02	6.350		
10,400.0	7,697.1	10,262.0	7,605.2	56.4	55.4	82.15	-2,721.7	8.4	673.2	563.6	109.64	6.140		
10,500.0	7,697.3	10,362.0	7,605.4	58.2	57.2	82.16	-2,821.7	8.4	673.2	559.9	113.27	5.943		
10,600.0	7,697.4	10,462.0	7,605.6	60.0	59.1	82.16	-2,921.7	8.4	673.2	556.3	116.91	5.758		
10,700.0	7,697.5	10,562.0	7,605.8	61.8	60.9	82.17	-3,021.7	8.4	673.2	552.6	120.56	5.584		
10,800.0	7,697.7	10,662.0	7,606.0	63.6	62.8	82.17	-3,121.7	8.4	673.2	548.9	124.22	5.419		
10,900.0	7,697.8	10,762.0	7,606.2	65.5	64.6	82.18	-3,221.7	8.4	673.2	545.3	127.89	5.264		
11,000.0	7,698.0	10,862.0	7,606.4	67.3	66.5	82.19	-3,321.7	8.4	673.1	541.6	131.56	5.117		
11,100.0	7,698.1	10,962.0	7,606.7	69.1	68.3	82.19	-3,421.7	8.4	673.1	537.9	135.24	4.977		
11,200.0	7,698.2	11,062.0	7,606.9	71.0	70.2	82.20	-3,521.7	8.4	673.1	534.2	138.93	4.845		
11,300.0	7,698.4	11,162.0	7,607.1	72.8	72.0	82.20	-3,621.7	8.4	673.1	530.5	142.63	4.719		
11,400.0	7,698.5	11,262.0	7,607.3	74.6	73.9	82.21	-3,721.7	8.4	673.1	526.8	146.33	4.600		
11,500.0	7,698.7	11,362.0	7,607.5	76.5	75.8	82.22	-3,821.7	8.4	673.1	523.1	150.03	4.486		
11,600.0	7,698.8	11,462.0	7,607.7	78.3	77.7	82.22	-3,921.7	8.4	673.1	519.3	153.74	4.378		
11,700.0	7,698.9	11,562.0	7,607.9	80.2	79.5	82.23	-4,021.7	8.4	673.1	515.6	157.46	4.275		
11,800.0	7,699.1	11,662.0	7,608.1	82.0	81.4	82.23	-4,121.7	8.4	673.1	511.9	161.18	4.176		
11,900.0	7,699.2	11,762.0	7,608.3	83.9	83.3	82.24	-4,221.7	8.4	673.1	508.2	164.90	4.082		
12,000.0	7,699.4	11,862.0	7,608.5	85.8	85.2	82.24	-4,321.7	8.4	673.0	504.4	168.63	3.991		
12,100.0	7,699.5	11,962.0	7,608.7	87.6	87.0	82.25	-4,421.7	8.4	673.0	500.7	172.36	3.905		
12,200.0	7,699.6	12,062.0	7,609.0	89.5	88.9	82.26	-4,521.7	8.4	673.0	496.9	176.09	3.822		
12,300.0	7,699.8	12,162.0	7,609.2	91.4	90.8	82.26	-4,621.7	8.4	673.0	493.2	179.83	3.743		
12,400.0	7,699.9	12,262.0	7,609.4	93.2	92.7	82.27	-4,721.7	8.4	673.0	489.4	183.56	3.666		
12,500.0	7,700.1	12,362.0	7,609.6	95.1	94.6	82.27	-4,821.7	8.4	673.0	485.7	187.31	3.593		
12,600.0	7,700.2	12,462.0	7,609.8	97.0	96.5	82.28	-4,921.7	8.4	673.0	481.9	191.05	3.523		
12,700.0	7,700.3	12,562.0	7,610.0	98.8	98.3	82.29	-5,021.7	8.4	673.0	478.2	194.80	3.455		
12,800.0	7,700.5	12,662.0	7,610.2	100.7	100.2	82.29	-5,121.7	8.4	673.0	474.4	198.54	3.390		
12,900.0	7,700.6	12,762.0	7,610.4	102.6	102.1	82.30	-5,221.7	8.4	673.0	470.7	202.30	3.327		
13,000.0	7,700.8	12,862.0	7,610.6	104.5	104.0	82.30	-5,321.7	8.4	673.0	466.9	206.05	3.266		
13,100.0	7,700.9	12,962.0	7,610.8	106.4	105.9	82.31	-5,421.7	8.4	672.9	463.1	209.80	3.208		
13,200.0	7,701.0	13,062.0	7,611.1	108.2	107.8	82.32	-5,521.7	8.4	672.9	459.4	213.56	3.151		
13,300.0	7,701.2	13,162.0	7,611.3	110.1	109.7	82.32	-5,621.7	8.4	672.9	455.6	217.32	3.097		
13,400.0	7,701.3	13,262.0	7,611.5	112.0	111.6	82.33	-5,721.7	8.4	672.9	451.8	221.08	3.044		
13,500.0	7,701.5	13,362.0	7,611.7	113.9	113.5	82.33	-5,821.7	8.4	672.9	448.1	224.84	2.993		
13,600.0	7,701.6	13,462.0	7,611.9	115.8	115.4	82.34	-5,921.7	8.4	672.9	444.3	228.60	2.944		
13,700.0	7,701.7	13,562.0	7,612.1	117.7	117.3	82.34	-6,021.7	8.4	672.9	440.5	232.37	2.896		
13,800.0	7,701.9	13,662.0	7,612.3	119.6	119.2	82.35	-6,121.7	8.4	672.9	436.7	236.13	2.850		
13,900.0	7,702.0	13,762.0	7,612.5	121.4	121.1	82.36	-6,221.7	8.4	672.9	433.0	239.90	2.805		
14,000.0	7,702.2	13,862.0	7,612.7	123.3	123.0	82.36	-6,321.7	8.4	672.9	429.2	243.67	2.761		
14,100.0	7,702.3	13,962.0	7,612.9	125.2	124.9	82.37	-6,421.7	8.4	672.9	425.4	247.44	2.719		
14,200.0	7,702.4	14,062.0	7,613.1	127.1	126.8	82.37	-6,521.7	8.4	672.8	421.6	251.21	2.678		
14,300.0	7,702.6	14,162.0	7,613.4	129.0	128.7	82.38	-6,621.7	8.4	672.8	417.9	254.98	2.639		
14,400.0	7,702.7	14,262.0	7,613.6	130.9	130.6	82.39	-6,721.7	8.4	672.8	414.1	258.75	2.600		
14,500.0	7,702.9	14,362.0	7,613.8	132.8	132.5	82.39	-6,821.7	8.4	672.8	410.3	262.52	2.563		
14,600.0	7,703.0	14,462.0	7,614.0	134.7	134.4	82.40	-6,921.7	8.4	672.8	406.5	266.30	2.527		
14,603.6	7,703.0	14,465.6	7,614.0	134.7	134.4	82.40	-6,925.3	8.4	672.8	406.4	266.43	2.525 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.01	0.0	56.0	56.0					
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	56.0	56.0	55.8	0.22	249.269		
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	56.0	56.0	55.4	0.67	83.090		
300.0	300.0	300.0	300.0	0.6	0.6	90.01	0.0	56.0	56.0	54.9	1.12	49.854		
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	56.0	56.0	54.5	1.57	35.610		
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	56.0	56.0	54.0	2.02	27.697		
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	56.0	56.0	53.6	2.47	22.661		
700.0	700.0	700.0	700.0	1.5	1.5	90.01	0.0	56.0	56.0	53.1	2.92	19.175		
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	56.0	56.0	52.7	3.37	16.618	CC, ES	
900.0	900.0	898.1	898.1	1.9	1.9	89.71	0.3	57.7	57.7	53.9	3.81	15.160		
1,000.0	1,000.0	995.9	995.8	2.1	2.1	88.90	1.2	62.6	62.8	58.5	4.24	14.808		
1,100.0	1,100.0	1,093.3	1,092.8	2.4	2.3	87.82	2.7	70.8	71.2	66.5	4.68	15.205		
1,200.0	1,200.0	1,190.0	1,188.8	2.6	2.6	86.67	4.8	82.1	83.0	77.9	5.14	16.135		
1,300.0	1,300.0	1,286.1	1,283.8	2.8	2.8	16.27	7.4	96.5	96.5	90.9	5.53	17.431		
1,400.0	1,399.8	1,381.8	1,377.8	3.0	3.1	15.92	10.6	113.9	109.9	104.0	5.95	18.466		
1,500.0	1,499.5	1,477.0	1,470.7	3.2	3.5	15.91	14.4	134.3	123.4	117.0	6.38	19.344		
1,600.0	1,598.7	1,573.1	1,563.8	3.5	3.9	16.15	18.7	157.9	136.6	129.8	6.81	20.057		
1,700.0	1,697.5	1,672.5	1,659.9	3.7	4.3	16.70	23.3	183.0	147.3	140.1	7.26	20.303		
1,800.0	1,796.0	1,772.1	1,756.1	4.0	4.8	17.41	27.9	208.2	156.5	148.7	7.74	20.216		
1,900.0	1,894.4	1,871.7	1,852.3	4.3	5.3	18.05	32.5	233.3	165.6	157.4	8.24	20.104		
2,000.0	1,992.9	1,971.2	1,948.6	4.7	5.8	18.61	37.1	258.5	174.8	166.1	8.75	19.984		
2,100.0	2,091.4	2,070.8	2,044.8	5.0	6.3	19.13	41.8	283.6	184.0	174.7	9.26	19.861		
2,200.0	2,189.9	2,170.4	2,141.0	5.3	6.8	19.59	46.4	308.8	193.2	183.4	9.79	19.735		
2,300.0	2,288.4	2,269.9	2,237.2	5.7	7.3	20.01	51.0	333.9	202.4	192.1	10.32	19.610		
2,400.0	2,386.9	2,369.5	2,333.4	6.0	7.8	20.39	55.6	359.1	211.6	200.8	10.86	19.487		
2,500.0	2,485.4	2,469.1	2,429.7	6.4	8.4	20.75	60.2	384.3	220.9	209.5	11.41	19.367		
2,600.0	2,583.9	2,568.6	2,525.9	6.8	8.9	21.07	64.9	409.4	230.1	218.2	11.96	19.250		
2,700.0	2,682.4	2,668.2	2,622.1	7.1	9.4	21.37	69.5	434.6	239.4	226.9	12.51	19.137		
2,800.0	2,780.9	2,767.7	2,718.3	7.5	10.0	21.65	74.1	459.7	248.6	235.6	13.07	19.028		
2,900.0	2,879.3	2,867.3	2,814.6	7.9	10.5	21.90	78.7	484.9	257.9	244.3	13.63	18.923		
3,000.0	2,977.8	2,966.9	2,910.8	8.3	11.0	22.14	83.3	510.1	267.2	253.0	14.19	18.822		
3,100.0	3,076.3	3,066.4	3,007.0	8.6	11.6	22.36	87.9	535.2	276.4	261.7	14.76	18.726		
3,200.0	3,174.8	3,166.0	3,103.2	9.0	12.1	22.57	92.6	560.4	285.7	270.4	15.33	18.634		
3,300.0	3,273.3	3,265.6	3,199.4	9.4	12.6	22.77	97.2	585.5	295.0	279.1	15.91	18.546		
3,400.0	3,371.8	3,365.1	3,295.7	9.8	13.2	22.95	101.8	610.7	304.3	287.8	16.48	18.461		
3,500.0	3,470.3	3,464.7	3,391.9	10.2	13.7	23.12	106.4	635.8	313.6	296.5	17.06	18.380		
3,600.0	3,568.8	3,564.3	3,488.1	10.5	14.2	23.29	111.0	661.0	322.8	305.2	17.64	18.303		
3,700.0	3,667.3	3,663.8	3,584.3	10.9	14.8	23.44	115.6	686.2	332.1	313.9	18.22	18.229		
3,800.0	3,765.7	3,763.4	3,680.6	11.3	15.3	23.58	120.3	711.3	341.4	322.6	18.80	18.158		
3,900.0	3,864.2	3,862.9	3,776.8	11.7	15.9	23.72	124.9	736.5	350.7	331.3	19.39	18.090		
4,000.0	3,962.7	3,962.5	3,873.0	12.1	16.4	23.85	129.5	761.6	360.0	340.0	19.97	18.025		
4,100.0	4,061.2	4,062.1	3,969.2	12.5	16.9	23.98	134.1	786.8	369.3	348.8	20.56	17.963		
4,200.0	4,159.7	4,161.6	4,065.4	12.9	17.5	24.09	138.7	812.0	378.6	357.5	21.15	17.903		
4,300.0	4,258.2	4,261.2	4,161.7	13.2	18.0	24.21	143.3	837.1	387.9	366.2	21.74	17.845		
4,400.0	4,356.7	4,360.8	4,257.9	13.6	18.6	24.31	148.0	862.3	397.2	374.9	22.33	17.790		
4,500.0	4,455.2	4,460.3	4,354.1	14.0	19.1	24.41	152.6	887.4	406.5	383.6	22.92	17.737		
4,600.0	4,553.7	4,559.9	4,450.3	14.4	19.7	24.51	157.2	912.6	415.8	392.3	23.51	17.686		
4,700.0	4,652.2	4,659.5	4,546.6	14.8	20.2	24.60	161.8	937.7	425.1	401.0	24.10	17.637		
4,800.0	4,750.6	4,759.0	4,642.8	15.2	20.7	24.69	166.4	962.9	434.4	409.7	24.70	17.590		
4,900.0	4,849.1	4,858.6	4,739.0	15.6	21.3	24.78	171.1	988.1	443.8	418.5	25.29	17.545		
5,000.0	4,947.6	4,958.1	4,835.2	16.0	21.8	24.86	175.7	1,013.2	453.1	427.2	25.89	17.501		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design		Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-323 - Wellbore #1 - Plan #2 (10-8-14)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.0	5,046.1	5,057.7	4,931.4	16.4	22.4	24.94	180.3	1,038.4	462.4	435.9	26.48	17.459		
5,200.0	5,144.6	5,157.3	5,027.7	16.8	22.9	25.02	184.9	1,063.5	471.7	444.6	27.08	17.418		
5,300.0	5,243.1	5,256.8	5,123.9	17.2	23.5	25.09	189.5	1,088.7	481.0	453.3	27.68	17.379		
5,400.0	5,341.6	5,356.4	5,220.1	17.5	24.0	25.18	194.1	1,113.8	490.5	462.3	28.26	17.356		
5,500.0	5,440.6	5,455.6	5,316.0	17.8	24.5	25.20	198.7	1,138.9	502.6	473.9	28.76	17.475		
5,600.0	5,540.0	5,554.4	5,411.5	18.0	25.1	25.08	203.3	1,163.9	517.8	488.6	29.20	17.735		
5,700.0	5,639.7	5,652.7	5,506.4	18.2	25.6	24.85	207.9	1,188.7	536.2	506.6	29.57	18.132		
5,800.0	5,739.7	5,750.2	5,600.7	18.4	26.2	24.52	212.4	1,213.4	557.7	527.8	29.88	18.662		
5,900.0	5,839.6	5,847.0	5,694.3	18.5	26.7	93.57	216.9	1,237.8	582.1	551.9	30.18	19.284		
6,000.0	5,939.6	5,943.7	5,787.7	18.7	27.2	92.99	221.4	1,262.2	607.1	576.5	30.55	19.871		
6,100.0	6,039.6	6,040.3	5,881.1	18.8	27.7	92.45	225.9	1,286.7	632.1	601.2	30.93	20.438		
6,200.0	6,139.6	6,136.9	5,974.5	19.0	28.3	91.95	230.3	1,311.1	657.2	625.9	31.32	20.987		
6,300.0	6,239.6	6,234.8	6,069.0	19.1	28.8	91.49	234.9	1,335.8	682.4	650.7	31.71	21.518		
6,400.0	6,339.6	6,362.3	6,193.0	19.3	29.3	90.98	240.3	1,365.1	705.3	673.2	32.14	21.943		
6,500.0	6,439.6	6,492.4	6,320.7	19.5	29.8	90.59	244.7	1,389.4	723.9	691.4	32.57	22.228		
6,600.0	6,539.6	6,624.4	6,451.4	19.6	30.1	90.30	248.1	1,408.1	738.1	705.1	32.99	22.375		
6,700.0	6,639.6	6,758.0	6,584.3	19.8	30.4	90.11	250.5	1,421.1	747.8	714.4	33.41	22.386		
6,800.0	6,739.6	6,892.5	6,718.6	19.9	30.6	90.02	251.8	1,427.9	752.9	719.1	33.81	22.267		
6,900.0	6,839.6	7,013.6	6,839.6	20.1	30.7	90.00	252.0	1,429.1	753.8	719.6	34.20	22.040		
7,000.0	6,939.6	7,113.6	6,939.6	20.3	30.8	-90.00	251.9	1,429.1	753.8	719.2	34.56	21.811		
7,100.0	7,039.3	7,213.6	7,039.3	20.4	30.9	-90.00	244.2	1,429.1	753.8	718.9	34.82	21.648		
7,200.0	7,137.0	7,313.6	7,137.0	20.4	31.0	-90.00	223.4	1,429.1	753.8	718.8	34.97	21.553		
7,300.0	7,231.2	7,413.6	7,231.2	20.5	31.0	-90.00	190.1	1,429.1	753.8	718.7	35.05	21.503		
7,400.0	7,320.3	7,513.6	7,320.3	20.5	31.0	-90.00	144.8	1,429.1	753.8	718.7	35.11	21.469		
7,500.0	7,402.7	7,613.6	7,402.7	20.5	31.0	-90.00	88.3	1,429.1	753.8	718.6	35.20	21.412		
7,600.0	7,477.0	7,713.6	7,477.0	20.5	31.0	-90.00	21.5	1,429.1	753.8	718.4	35.41	21.289		
7,700.0	7,541.9	7,813.6	7,541.9	20.6	31.0	-90.00	-54.5	1,429.1	753.8	718.0	35.79	21.060		
7,777.1	7,584.9	7,890.7	7,584.9	20.7	31.1	-90.00	-118.5	1,429.1	753.8	717.5	36.26	20.785		
7,800.0	7,596.4	7,913.6	7,596.4	20.7	31.1	-90.00	-138.3	1,429.1	753.8	717.3	36.42	20.695		
7,900.0	7,639.5	8,013.6	7,639.5	21.0	31.3	-90.00	-228.4	1,429.1	753.8	716.4	37.35	20.184		
8,000.0	7,670.4	8,113.6	7,670.4	21.4	31.5	-90.00	-323.5	1,429.1	753.8	715.2	38.58	19.537		
8,100.0	7,688.7	8,213.6	7,688.7	21.9	31.9	-90.00	-421.7	1,429.1	753.8	713.6	40.12	18.786		
8,200.0	7,694.1	8,313.6	7,694.1	22.7	32.3	-90.00	-521.5	1,429.1	753.8	711.8	41.94	17.973		
8,300.0	7,694.2	8,413.6	7,694.2	23.6	32.9	-90.00	-621.5	1,429.1	753.8	709.8	44.00	17.131		
8,400.0	7,694.3	8,513.6	7,694.3	24.7	33.5	-90.00	-721.5	1,429.1	753.8	707.5	46.28	16.285		
8,500.0	7,694.5	8,613.6	7,694.5	25.8	34.3	-90.00	-821.5	1,429.1	753.8	705.0	48.76	15.457		
8,600.0	7,694.6	8,713.6	7,694.6	27.1	35.1	-90.00	-921.5	1,429.1	753.8	702.4	51.41	14.662		
8,700.0	7,694.8	8,813.6	7,694.8	28.4	36.1	-90.00	-1,021.5	1,429.1	753.8	699.6	54.20	13.908		
8,800.0	7,694.9	8,913.6	7,694.9	29.8	37.1	-90.00	-1,121.5	1,429.1	753.8	696.7	57.10	13.200		
8,900.0	7,695.0	9,013.6	7,695.0	31.2	38.2	-90.00	-1,221.5	1,429.1	753.8	693.6	60.11	12.539		
9,000.0	7,695.2	9,113.6	7,695.2	32.7	39.4	-90.00	-1,321.5	1,429.1	753.8	690.5	63.21	11.924		
9,100.0	7,695.3	9,213.6	7,695.3	34.3	40.6	-90.00	-1,421.5	1,429.1	753.8	687.4	66.39	11.354		
9,200.0	7,695.5	9,313.6	7,695.5	35.8	41.9	-90.00	-1,521.5	1,429.1	753.8	684.1	69.63	10.825		
9,300.0	7,695.6	9,413.6	7,695.6	37.5	43.3	-90.00	-1,621.5	1,429.1	753.8	680.8	72.93	10.335		
9,400.0	7,695.7	9,513.6	7,695.7	39.1	44.7	-90.00	-1,721.5	1,429.1	753.8	677.5	76.28	9.882		
9,500.0	7,695.9	9,613.6	7,695.9	40.7	46.1	-90.00	-1,821.5	1,429.1	753.8	674.1	79.67	9.461		
9,600.0	7,696.0	9,713.6	7,696.0	42.4	47.6	-90.00	-1,921.5	1,429.1	753.8	670.7	83.10	9.070		
9,700.0	7,696.2	9,813.6	7,696.2	44.1	49.1	-90.00	-2,021.5	1,429.1	753.8	667.2	86.56	8.708		
9,800.0	7,696.3	9,913.6	7,696.3	45.8	50.6	-90.00	-2,121.5	1,429.1	753.8	663.7	90.06	8.370		
9,900.0	7,696.4	10,013.6	7,696.4	47.6	52.2	-90.00	-2,221.5	1,429.1	753.8	660.2	93.58	8.055		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,000.0	7,696.6	10,113.6	7,696.6	49.3	53.8	-90.00	-2,321.5	1,429.1	753.8	656.6	97.12	7.761		
10,100.0	7,696.7	10,213.6	7,696.7	51.1	55.4	-90.00	-2,421.5	1,429.1	753.8	653.1	100.68	7.486		
10,200.0	7,696.9	10,313.6	7,696.9	52.8	57.0	-90.00	-2,521.5	1,429.1	753.8	649.5	104.27	7.229		
10,300.0	7,697.0	10,413.6	7,697.0	54.6	58.7	-90.00	-2,621.5	1,429.1	753.8	645.9	107.87	6.988		
10,400.0	7,697.1	10,513.6	7,697.1	56.4	60.3	-90.00	-2,721.5	1,429.1	753.8	642.3	111.48	6.761		
10,500.0	7,697.3	10,613.6	7,697.3	58.2	62.0	-90.00	-2,821.5	1,429.1	753.8	638.6	115.11	6.548		
10,600.0	7,697.4	10,713.6	7,697.4	60.0	63.7	-90.00	-2,921.5	1,429.1	753.8	635.0	118.75	6.347		
10,700.0	7,697.5	10,813.6	7,697.5	61.8	65.4	-90.00	-3,021.5	1,429.1	753.8	631.4	122.41	6.158		
10,800.0	7,697.7	10,913.6	7,697.7	63.6	67.1	-90.00	-3,121.5	1,429.1	753.8	627.7	126.07	5.979		
10,900.0	7,697.8	11,013.6	7,697.8	65.5	68.8	-90.00	-3,221.5	1,429.1	753.8	624.0	129.74	5.810		
11,000.0	7,698.0	11,113.6	7,698.0	67.3	70.6	-90.00	-3,321.5	1,429.1	753.8	620.3	133.43	5.649		
11,100.0	7,698.1	11,213.6	7,698.1	69.1	72.3	-90.00	-3,421.5	1,429.1	753.8	616.6	137.12	5.497		
11,200.0	7,698.2	11,313.6	7,698.2	71.0	74.1	-90.00	-3,521.5	1,429.1	753.8	612.9	140.81	5.353		
11,300.0	7,698.4	11,413.6	7,698.4	72.8	75.8	-90.00	-3,621.5	1,429.1	753.8	609.2	144.52	5.216		
11,400.0	7,698.5	11,513.6	7,698.5	74.6	77.6	-90.00	-3,721.5	1,429.1	753.8	605.5	148.23	5.085		
11,500.0	7,698.7	11,613.6	7,698.7	76.5	79.4	-90.00	-3,821.5	1,429.1	753.8	601.8	151.95	4.961		
11,600.0	7,698.8	11,713.6	7,698.8	78.3	81.2	-90.00	-3,921.5	1,429.1	753.8	598.1	155.67	4.842		
11,700.0	7,698.9	11,813.6	7,698.9	80.2	83.0	-90.00	-4,021.5	1,429.1	753.8	594.4	159.40	4.729		
11,800.0	7,699.1	11,913.6	7,699.1	82.0	84.8	-90.00	-4,121.5	1,429.1	753.8	590.6	163.13	4.621		
11,900.0	7,699.2	12,013.6	7,699.2	83.9	86.6	-90.00	-4,221.5	1,429.1	753.8	586.9	166.87	4.517		
12,000.0	7,699.4	12,113.6	7,699.4	85.8	88.4	-90.00	-4,321.5	1,429.1	753.8	583.2	170.61	4.418		
12,100.0	7,699.5	12,213.6	7,699.5	87.6	90.2	-90.00	-4,421.5	1,429.1	753.8	579.4	174.35	4.323		
12,200.0	7,699.6	12,313.6	7,699.6	89.5	92.0	-90.00	-4,521.5	1,429.1	753.8	575.7	178.10	4.232		
12,300.0	7,699.8	12,413.6	7,699.8	91.4	93.8	-90.00	-4,621.5	1,429.1	753.8	571.9	181.85	4.145		
12,400.0	7,699.9	12,513.6	7,699.9	93.2	95.6	-90.00	-4,721.5	1,429.1	753.8	568.2	185.61	4.061		
12,500.0	7,700.1	12,613.6	7,700.1	95.1	97.4	-90.00	-4,821.5	1,429.1	753.8	564.4	189.37	3.980		
12,600.0	7,700.2	12,713.6	7,700.2	97.0	99.3	-90.00	-4,921.5	1,429.1	753.8	560.6	193.13	3.903		
12,700.0	7,700.3	12,813.6	7,700.3	98.8	101.1	-90.00	-5,021.5	1,429.1	753.8	556.9	196.89	3.828		
12,800.0	7,700.5	12,913.6	7,700.5	100.7	102.9	-90.00	-5,121.5	1,429.1	753.8	553.1	200.66	3.756		
12,900.0	7,700.6	13,013.6	7,700.6	102.6	104.8	-90.00	-5,221.5	1,429.1	753.8	549.3	204.43	3.687		
13,000.0	7,700.8	13,113.6	7,700.8	104.5	106.6	-90.00	-5,321.5	1,429.1	753.8	545.6	208.20	3.620		
13,100.0	7,700.9	13,213.6	7,700.9	106.4	108.5	-90.00	-5,421.5	1,429.1	753.8	541.8	211.97	3.556		
13,200.0	7,701.0	13,313.6	7,701.0	108.2	110.3	-90.00	-5,521.5	1,429.1	753.8	538.0	215.74	3.494		
13,300.0	7,701.2	13,413.6	7,701.2	110.1	112.2	-90.00	-5,621.5	1,429.1	753.8	534.2	219.52	3.434		
13,400.0	7,701.3	13,513.6	7,701.3	112.0	114.0	-90.00	-5,721.5	1,429.1	753.8	530.5	223.30	3.376		
13,500.0	7,701.5	13,613.6	7,701.5	113.9	115.9	-90.00	-5,821.5	1,429.1	753.8	526.7	227.08	3.319		
13,600.0	7,701.6	13,713.6	7,701.6	115.8	117.7	-90.00	-5,921.5	1,429.1	753.8	522.9	230.86	3.265		
13,700.0	7,701.7	13,813.6	7,701.7	117.7	119.6	-90.00	-6,021.5	1,429.1	753.8	519.1	234.65	3.212		
13,800.0	7,701.9	13,913.6	7,701.9	119.6	121.4	-90.00	-6,121.5	1,429.1	753.8	515.3	238.43	3.161		
13,900.0	7,702.0	14,013.6	7,702.0	121.4	123.3	-90.00	-6,221.5	1,429.1	753.8	511.5	242.22	3.112		
14,000.0	7,702.2	14,113.6	7,702.2	123.3	125.1	-90.00	-6,321.5	1,429.1	753.8	507.8	246.01	3.064		
14,100.0	7,702.3	14,213.6	7,702.3	125.2	127.0	-90.00	-6,421.5	1,429.1	753.8	504.0	249.80	3.018		
14,200.0	7,702.4	14,313.6	7,702.4	127.1	128.9	-90.00	-6,521.5	1,429.1	753.8	500.2	253.59	2.972		
14,300.0	7,702.6	14,413.6	7,702.6	129.0	130.7	-90.00	-6,621.5	1,429.1	753.8	496.4	257.38	2.929		
14,400.0	7,702.7	14,513.6	7,702.7	130.9	132.6	-90.00	-6,721.5	1,429.1	753.8	492.6	261.17	2.886		
14,500.0	7,702.9	14,613.6	7,702.9	132.8	134.5	-90.00	-6,821.5	1,429.1	753.8	488.8	264.96	2.845		
14,571.6	7,703.0	14,685.2	7,703.0	134.1	135.8	-90.00	-6,893.1	1,429.1	753.8	486.1	267.68	2.816		
14,600.0	7,703.0	14,713.5	7,703.0	134.7	136.3	-90.00	-6,921.4	1,429.1	753.8	485.0	268.76	2.805		
14,603.6	7,703.0	14,713.5	7,703.0	134.7	136.3	-90.00	-6,921.4	1,429.1	753.8	484.9	268.83	2.804 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design											Offset Site Error:		0.0 ft	
Survey Program: 0-MWD											Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	28.0	28.0					
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	28.0	28.0	27.8	0.22	124.634		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	28.0	28.0	27.3	0.67	41.545		
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	28.0	28.0	26.9	1.12	24.927		
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	28.0	28.0	26.4	1.57	17.805		
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	28.0	28.0	26.0	2.02	13.848		
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	28.0	28.0	25.5	2.47	11.330		
700.0	700.0	700.0	700.0	1.5	1.5	90.00	0.0	28.0	28.0	25.1	2.92	9.587		
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	28.0	28.0	24.6	3.37	8.309		
900.0	900.0	900.0	900.0	1.9	1.9	90.00	0.0	28.0	28.0	24.2	3.82	7.331		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	0.0	28.0	28.0	23.7	4.27	6.560 CC, ES		
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.3	89.19	0.4	29.7	29.7	25.0	4.71	6.306		
1,200.0	1,200.0	1,197.8	1,197.6	2.6	2.6	87.24	1.7	34.6	34.8	29.6	5.14	6.758		
1,300.0	1,300.0	1,296.3	1,295.8	2.8	2.8	16.08	3.7	42.9	41.6	36.0	5.56	7.474		
1,400.0	1,399.8	1,394.5	1,393.3	3.0	3.0	15.35	6.6	54.3	48.4	42.4	5.97	8.106		
1,500.0	1,499.5	1,492.5	1,490.1	3.2	3.3	15.19	10.3	69.0	55.3	48.9	6.38	8.657		
1,600.0	1,598.7	1,590.3	1,586.1	3.5	3.6	15.40	14.8	86.8	62.2	55.4	6.80	9.138		
1,700.0	1,697.5	1,690.1	1,683.8	3.7	3.9	16.13	19.8	106.7	67.5	60.3	7.23	9.335		
1,800.0	1,796.0	1,790.0	1,781.6	4.0	4.3	17.16	24.8	126.6	71.2	63.5	7.70	9.251		
1,900.0	1,894.4	1,889.9	1,879.3	4.3	4.7	18.10	29.9	146.6	75.0	66.8	8.18	9.165		
2,000.0	1,992.9	1,989.9	1,977.1	4.7	5.1	18.94	34.9	166.5	78.7	70.0	8.67	9.080		
2,100.0	2,091.4	2,089.8	2,074.9	5.0	5.5	19.71	39.9	186.5	82.5	73.3	9.17	8.995		
2,200.0	2,189.9	2,189.7	2,172.7	5.3	5.9	20.40	44.9	206.4	86.3	76.6	9.68	8.912		
2,300.0	2,288.4	2,289.6	2,270.5	5.7	6.3	21.04	50.0	226.4	90.1	79.9	10.20	8.831		
2,400.0	2,386.9	2,389.5	2,368.3	6.0	6.7	21.63	55.0	246.3	93.9	83.2	10.73	8.753		
2,500.0	2,485.4	2,489.5	2,466.0	6.4	7.1	22.18	60.0	266.3	97.7	86.5	11.26	8.678		
2,600.0	2,583.9	2,589.4	2,563.8	6.8	7.6	22.68	65.0	286.2	101.6	89.8	11.80	8.606		
2,700.0	2,682.4	2,689.3	2,661.6	7.1	8.0	23.14	70.1	306.2	105.4	93.1	12.35	8.537		
2,800.0	2,780.9	2,789.2	2,759.4	7.5	8.4	23.57	75.1	326.1	109.2	96.3	12.90	8.470		
2,900.0	2,879.3	2,889.2	2,857.2	7.9	8.9	23.98	80.1	346.1	113.1	99.6	13.45	8.407		
3,000.0	2,977.8	2,989.1	2,955.0	8.3	9.3	24.35	85.1	366.0	116.9	102.9	14.01	8.346		
3,100.0	3,076.3	3,089.0	3,052.7	8.6	9.7	24.71	90.2	386.0	120.8	106.2	14.58	8.289		
3,200.0	3,174.8	3,188.9	3,150.5	9.0	10.2	25.04	95.2	405.9	124.7	109.5	15.14	8.234		
3,300.0	3,273.3	3,288.9	3,248.3	9.4	10.6	25.35	100.2	425.9	128.5	112.8	15.71	8.181		
3,400.0	3,371.8	3,388.8	3,346.1	9.8	11.0	25.64	105.2	445.8	132.4	116.1	16.29	8.131		
3,500.0	3,470.3	3,488.7	3,443.9	10.2	11.5	25.91	110.3	465.7	136.3	119.4	16.86	8.083		
3,600.0	3,568.8	3,588.6	3,541.6	10.5	11.9	26.18	115.3	485.7	140.2	122.7	17.44	8.037		
3,700.0	3,667.3	3,688.5	3,639.4	10.9	12.4	26.42	120.3	505.6	144.1	126.0	18.02	7.993		
3,800.0	3,765.7	3,788.5	3,737.2	11.3	12.8	26.66	125.3	525.6	147.9	129.3	18.61	7.951		
3,900.0	3,864.2	3,888.4	3,835.0	11.7	13.3	26.88	130.4	545.5	151.8	132.6	19.19	7.911		
4,000.0	3,962.7	3,988.3	3,932.8	12.1	13.7	27.09	135.4	565.5	155.7	135.9	19.78	7.873		
4,100.0	4,061.2	4,088.2	4,030.6	12.5	14.2	27.29	140.4	585.4	159.6	139.2	20.37	7.836		
4,200.0	4,159.7	4,188.2	4,128.3	12.9	14.6	27.48	145.4	605.4	163.5	142.5	20.96	7.801		
4,300.0	4,258.2	4,288.1	4,226.1	13.2	15.1	27.66	150.5	625.3	167.4	145.8	21.55	7.768		
4,400.0	4,356.7	4,388.0	4,323.9	13.6	15.5	27.83	155.5	645.3	171.3	149.1	22.14	7.735		
4,500.0	4,455.2	4,487.9	4,421.7	14.0	15.9	28.00	160.5	665.2	175.2	152.4	22.74	7.704		
4,600.0	4,553.7	4,587.8	4,519.5	14.4	16.4	28.16	165.5	685.2	179.1	155.7	23.33	7.675		
4,700.0	4,652.2	4,687.8	4,617.3	14.8	16.8	28.31	170.6	705.1	183.0	159.0	23.93	7.646		
4,800.0	4,750.6	4,787.7	4,715.0	15.2	17.3	28.46	175.6	725.1	186.9	162.3	24.53	7.619		
4,900.0	4,849.1	4,887.6	4,812.8	15.6	17.7	28.60	180.6	745.0	190.8	165.7	25.13	7.592		
5,000.0	4,947.6	4,987.5	4,910.6	16.0	18.2	28.73	185.6	765.0	194.7	169.0	25.73	7.567		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.0	5,046.1	5,087.5	5,008.4	16.4	18.6	28.86	190.7	784.9	198.6	172.3	26.33	7.542		
5,200.0	5,144.6	5,187.4	5,106.2	16.8	19.1	28.98	195.7	804.8	202.5	175.6	26.93	7.519		
5,300.0	5,243.1	5,287.3	5,204.0	17.2	19.5	29.10	200.7	824.8	206.4	178.9	27.53	7.496		
5,400.0	5,341.6	5,387.2	5,301.7	17.5	20.0	29.20	205.7	844.7	210.5	182.4	28.13	7.485		
5,500.0	5,440.6	5,487.0	5,399.4	17.8	20.4	28.98	210.8	864.7	217.1	188.5	28.60	7.591		
5,600.0	5,540.0	5,586.5	5,496.7	18.0	20.9	28.37	215.8	884.5	226.8	197.8	28.98	7.826		
5,700.0	5,639.7	5,685.6	5,593.7	18.2	21.3	27.47	220.7	904.3	239.5	210.3	29.25	8.188		
5,800.0	5,739.7	5,784.1	5,690.1	18.4	21.8	26.34	225.7	924.0	255.5	226.0	29.45	8.673		
5,900.0	5,839.6	5,882.1	5,786.0	18.5	22.2	94.56	230.6	943.5	274.4	244.7	29.63	9.260		
6,000.0	5,939.6	5,980.0	5,881.8	18.7	22.7	93.27	235.5	963.1	294.0	264.1	29.88	9.837		
6,100.0	6,039.6	6,085.9	5,985.7	18.8	23.1	92.11	240.6	983.2	312.8	282.7	30.17	10.369		
6,200.0	6,139.6	6,196.5	6,094.9	19.0	23.4	91.24	245.0	1,000.5	328.3	297.8	30.47	10.773		
6,300.0	6,239.6	6,308.4	6,205.9	19.1	23.7	90.63	248.3	1,013.7	340.1	309.3	30.80	11.041		
6,400.0	6,339.6	6,421.2	6,318.3	19.3	23.9	90.23	250.6	1,022.8	348.1	317.0	31.15	11.176		
6,500.0	6,439.6	6,534.5	6,431.5	19.5	24.1	90.03	251.8	1,027.6	352.4	320.9	31.51	11.182		
6,600.0	6,539.6	6,642.7	6,539.6	19.6	24.2	90.00	252.0	1,028.4	353.1	321.2	31.88	11.074		
6,700.0	6,639.6	6,742.7	6,639.6	19.8	24.3	90.00	252.0	1,028.4	353.1	320.8	32.25	10.947		
6,800.0	6,739.6	6,842.7	6,739.6	19.9	24.5	90.00	252.0	1,028.4	353.1	320.4	32.63	10.821		
6,900.0	6,839.6	6,942.7	6,839.6	20.1	24.6	90.00	252.0	1,028.4	353.1	320.1	33.01	10.697		
6,965.0	6,904.6	7,007.7	6,904.6	20.2	24.7	-90.04	252.0	1,028.4	353.1	319.8	33.25	10.620		
7,000.0	6,939.6	7,042.7	6,939.6	20.3	24.7	-90.01	252.0	1,028.4	353.1	319.7	33.38	10.576		
7,020.6	6,960.2	7,063.3	6,960.2	20.3	24.8	-90.10	252.0	1,028.4	353.1	319.6	33.44	10.559		
7,100.0	7,039.3	7,142.3	7,039.3	20.4	24.9	-91.26	252.0	1,028.4	353.1	319.6	33.54	10.529		
7,200.0	7,137.0	7,243.2	7,139.9	20.4	25.0	-93.65	246.0	1,028.4	353.8	320.3	33.49	10.564		
7,300.0	7,231.2	7,346.2	7,240.9	20.5	25.0	-95.99	226.3	1,028.4	355.0	321.6	33.42	10.625		
7,400.0	7,320.3	7,451.3	7,340.3	20.5	25.1	-98.24	192.4	1,028.4	356.8	323.5	33.36	10.696		
7,500.0	7,402.7	7,558.6	7,436.0	20.5	25.1	-100.34	144.0	1,028.4	359.0	325.6	33.36	10.761		
7,600.0	7,477.0	7,668.0	7,525.6	20.5	25.1	-102.25	81.4	1,028.4	361.4	327.9	33.46	10.803		
7,700.0	7,541.9	7,779.5	7,606.8	20.6	25.1	-103.94	5.1	1,028.4	363.9	330.2	33.68	10.805		
7,800.0	7,596.4	7,892.9	7,677.1	20.7	25.2	-105.37	-83.7	1,028.4	366.2	332.2	34.05	10.756		
7,900.0	7,639.5	8,007.8	7,734.1	21.0	25.4	-106.50	-183.4	1,028.4	368.3	333.7	34.64	10.633		
8,000.0	7,670.4	8,124.1	7,776.0	21.4	25.7	-107.32	-291.7	1,028.4	369.9	334.4	35.46	10.429		
8,100.0	7,688.7	8,241.2	7,801.0	21.9	26.1	-107.80	-406.0	1,028.4	370.8	334.3	36.56	10.144		
8,200.0	7,694.1	8,356.1	7,808.5	22.7	26.8	-107.96	-520.6	1,028.4	371.1	333.2	37.96	9.778		
8,300.0	7,694.2	8,456.1	7,809.3	23.6	27.5	-108.06	-620.5	1,028.4	371.4	331.4	39.91	9.305		
8,400.0	7,694.3	8,556.1	7,810.1	24.7	28.3	-108.16	-720.5	1,028.4	371.6	329.5	42.07	8.832		
8,500.0	7,694.5	8,656.1	7,811.0	25.8	29.3	-108.26	-820.5	1,028.4	371.8	327.4	44.43	8.368		
8,600.0	7,694.6	8,756.1	7,811.8	27.1	30.4	-108.36	-920.5	1,028.4	372.0	325.0	46.95	7.924		
8,700.0	7,694.8	8,856.1	7,812.6	28.4	31.5	-108.46	-1,020.5	1,028.4	372.2	322.6	49.60	7.504		
8,800.0	7,694.9	8,956.1	7,813.4	29.8	32.7	-108.56	-1,120.5	1,028.4	372.4	320.1	52.37	7.111		
8,900.0	7,695.0	9,056.1	7,814.2	31.2	34.0	-108.66	-1,220.5	1,028.4	372.6	317.4	55.24	6.745		
9,000.0	7,695.2	9,156.1	7,815.1	32.7	35.4	-108.75	-1,320.5	1,028.4	372.9	314.7	58.19	6.407		
9,100.0	7,695.3	9,256.1	7,815.9	34.3	36.8	-108.85	-1,420.5	1,028.4	373.1	311.9	61.22	6.095		
9,200.0	7,695.5	9,356.1	7,816.7	35.8	38.3	-108.95	-1,520.5	1,028.4	373.3	309.0	64.30	5.806		
9,300.0	7,695.6	9,456.1	7,817.5	37.5	39.8	-109.05	-1,620.5	1,028.4	373.5	306.1	67.43	5.540		
9,400.0	7,695.7	9,556.1	7,818.3	39.1	41.3	-109.15	-1,720.5	1,028.4	373.7	303.1	70.60	5.294		
9,500.0	7,695.9	9,656.1	7,819.2	40.7	42.9	-109.25	-1,820.5	1,028.4	374.0	300.2	73.81	5.067		
9,600.0	7,696.0	9,756.1	7,820.0	42.4	44.5	-109.35	-1,920.5	1,028.4	374.2	297.1	77.05	4.856		
9,700.0	7,696.2	9,856.1	7,820.8	44.1	46.1	-109.44	-2,020.5	1,028.4	374.4	294.1	80.32	4.661		
9,800.0	7,696.3	9,956.1	7,821.6	45.8	47.7	-109.54	-2,120.5	1,028.4	374.6	291.0	83.62	4.480		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design										Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-403 - Wellbore #1 - Plan #1 (10-8-14)				Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
9,900.0	7,696.4	10,056.1	7,822.4	47.6	49.4	-109.64	-2,220.5	1,028.4	374.9	287.9	86.93	4.312				
10,000.0	7,696.6	10,156.1	7,823.3	49.3	51.1	-109.74	-2,320.5	1,028.4	375.1	284.8	90.27	4.156				
10,100.0	7,696.7	10,256.1	7,824.1	51.1	52.8	-109.84	-2,420.4	1,028.4	375.3	281.7	93.61	4.009				
10,200.0	7,696.9	10,356.1	7,824.9	52.8	54.5	-109.93	-2,520.4	1,028.4	375.6	278.6	96.97	3.873				
10,300.0	7,697.0	10,456.1	7,825.7	54.6	56.2	-110.03	-2,620.4	1,028.4	375.8	275.5	100.35	3.745				
10,400.0	7,697.1	10,556.1	7,826.5	56.4	58.0	-110.13	-2,720.4	1,028.4	376.0	272.3	103.73	3.625				
10,500.0	7,697.3	10,656.1	7,827.4	58.2	59.7	-110.23	-2,820.4	1,028.4	376.3	269.1	107.12	3.512				
10,600.0	7,697.4	10,756.1	7,828.2	60.0	61.5	-110.32	-2,920.4	1,028.4	376.5	266.0	110.52	3.407				
10,700.0	7,697.5	10,856.1	7,829.0	61.8	63.2	-110.42	-3,020.4	1,028.4	376.7	262.8	113.93	3.307				
10,800.0	7,697.7	10,956.1	7,829.8	63.6	65.0	-110.52	-3,120.4	1,028.4	377.0	259.6	117.34	3.213				
10,900.0	7,697.8	11,056.1	7,830.6	65.5	66.8	-110.61	-3,220.4	1,028.4	377.2	256.5	120.75	3.124				
11,000.0	7,698.0	11,156.1	7,831.5	67.3	68.6	-110.71	-3,320.4	1,028.4	377.5	253.3	124.17	3.040				
11,100.0	7,698.1	11,256.1	7,832.3	69.1	70.4	-110.81	-3,420.4	1,028.4	377.7	250.1	127.60	2.960				
11,200.0	7,698.2	11,356.1	7,833.1	71.0	72.2	-110.90	-3,520.4	1,028.4	377.9	246.9	131.02	2.885				
11,300.0	7,698.4	11,456.0	7,833.9	72.8	74.0	-111.00	-3,620.4	1,028.4	378.2	243.7	134.45	2.813				
11,400.0	7,698.5	11,556.0	7,834.7	74.6	75.8	-111.10	-3,720.4	1,028.4	378.4	240.5	137.88	2.745				
11,500.0	7,698.7	11,656.0	7,835.6	76.5	77.6	-111.19	-3,820.4	1,028.4	378.7	237.4	141.31	2.680				
11,600.0	7,698.8	11,756.0	7,836.4	78.3	79.4	-111.29	-3,920.4	1,028.4	378.9	234.2	144.74	2.618				
11,700.0	7,698.9	11,856.0	7,837.2	80.2	81.3	-111.39	-4,020.4	1,028.4	379.2	231.0	148.17	2.559				
11,800.0	7,699.1	11,956.0	7,838.0	82.0	83.1	-111.48	-4,120.3	1,028.4	379.4	227.8	151.61	2.503				
11,900.0	7,699.2	12,056.0	7,838.8	83.9	84.9	-111.58	-4,220.3	1,028.4	379.7	224.6	155.04	2.449				
12,000.0	7,699.4	12,156.0	7,839.7	85.8	86.8	-111.67	-4,320.3	1,028.4	379.9	221.4	158.47	2.397				
12,100.0	7,699.5	12,256.0	7,840.5	87.6	88.6	-111.77	-4,420.3	1,028.4	380.2	218.3	161.90	2.348				
12,200.0	7,699.6	12,356.0	7,841.3	89.5	90.5	-111.86	-4,520.3	1,028.4	380.4	215.1	165.33	2.301				
12,300.0	7,699.8	12,456.0	7,842.1	91.4	92.3	-111.96	-4,620.3	1,028.4	380.7	211.9	168.76	2.256				
12,400.0	7,699.9	12,556.0	7,842.9	93.2	94.2	-112.05	-4,720.3	1,028.4	380.9	208.7	172.18	2.212				
12,500.0	7,700.1	12,656.0	7,843.8	95.1	96.0	-112.15	-4,820.3	1,028.4	381.2	205.6	175.61	2.171				
12,600.0	7,700.2	12,756.0	7,844.6	97.0	97.9	-112.24	-4,920.3	1,028.4	381.4	202.4	179.03	2.131				
12,700.0	7,700.3	12,856.0	7,845.4	98.8	99.7	-112.34	-5,020.3	1,028.4	381.7	199.2	182.46	2.092				
12,800.0	7,700.5	12,956.0	7,846.2	100.7	101.6	-112.43	-5,120.3	1,028.4	382.0	196.1	185.88	2.055				
12,900.0	7,700.6	13,056.0	7,847.0	102.6	103.5	-112.53	-5,220.3	1,028.4	382.2	192.9	189.29	2.019				
13,000.0	7,700.8	13,156.0	7,847.9	104.5	105.3	-112.62	-5,320.3	1,028.4	382.5	189.8	192.71	1.985				
13,100.0	7,700.9	13,256.0	7,848.7	106.4	107.2	-112.71	-5,420.3	1,028.4	382.7	186.6	196.12	1.952				
13,200.0	7,701.0	13,356.0	7,849.5	108.2	109.1	-112.81	-5,520.3	1,028.4	383.0	183.5	199.53	1.920				
13,300.0	7,701.2	13,456.0	7,850.3	110.1	110.9	-112.90	-5,620.3	1,028.4	383.3	180.3	202.94	1.889				
13,400.0	7,701.3	13,556.0	7,851.1	112.0	112.8	-112.99	-5,720.3	1,028.4	383.5	177.2	206.34	1.859				
13,500.0	7,701.5	13,656.0	7,852.0	113.9	114.7	-113.09	-5,820.3	1,028.4	383.8	174.1	209.74	1.830				
13,600.0	7,701.6	13,756.0	7,852.8	115.8	116.5	-113.18	-5,920.2	1,028.4	384.1	170.9	213.14	1.802				
13,700.0	7,701.7	13,856.0	7,853.6	117.7	118.4	-113.28	-6,020.2	1,028.4	384.3	167.8	216.54	1.775				
13,800.0	7,701.9	13,956.0	7,854.4	119.6	120.3	-113.37	-6,120.2	1,028.4	384.6	164.7	219.93	1.749				
13,900.0	7,702.0	14,056.0	7,855.2	121.4	122.2	-113.46	-6,220.2	1,028.4	384.9	161.6	223.32	1.723				
14,000.0	7,702.2	14,156.0	7,856.1	123.3	124.0	-113.55	-6,320.2	1,028.4	385.2	158.4	226.71	1.699				
14,100.0	7,702.3	14,256.0	7,856.9	125.2	125.9	-113.65	-6,420.2	1,028.4	385.4	155.3	230.09	1.675				
14,200.0	7,702.4	14,356.0	7,857.7	127.1	127.8	-113.74	-6,520.2	1,028.4	385.7	152.2	233.47	1.652				
14,300.0	7,702.6	14,456.0	7,858.5	129.0	129.7	-113.83	-6,620.2	1,028.4	386.0	149.1	236.85	1.630				
14,400.0	7,702.7	14,556.0	7,859.3	130.9	131.6	-113.92	-6,720.2	1,028.4	386.2	146.0	240.22	1.608				
14,500.0	7,702.9	14,656.0	7,860.2	132.8	133.4	-114.02	-6,820.2	1,028.4	386.5	142.9	243.59	1.587				
14,600.0	7,703.0	14,756.0	7,861.0	134.7	135.3	-114.11	-6,920.2	1,028.4	386.8	139.8	246.95	1.566				
14,603.6	7,703.0	14,757.2	7,861.0	134.7	135.4	-114.11	-6,921.4	1,028.4	386.8	139.8	247.04	1.566 SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-90.06	0.0	-30.8	30.8					
100.0	100.0	100.0	100.0	0.1	0.1	-90.06	0.0	-30.8	30.8	30.6	0.22	137.098		
200.0	200.0	200.0	200.0	0.3	0.3	-90.06	0.0	-30.8	30.8	30.1	0.67	45.699		
300.0	300.0	300.0	300.0	0.6	0.6	-90.06	0.0	-30.8	30.8	29.7	1.12	27.420		
400.0	400.0	400.0	400.0	0.8	0.8	-90.06	0.0	-30.8	30.8	29.2	1.57	19.585		
500.0	500.0	500.0	500.0	1.0	1.0	-90.06	0.0	-30.8	30.8	28.8	2.02	15.233		
600.0	600.0	600.0	600.0	1.2	1.2	-90.06	0.0	-30.8	30.8	28.3	2.47	12.463		
700.0	700.0	700.0	700.0	1.5	1.5	-90.06	0.0	-30.8	30.8	27.9	2.92	10.546		
800.0	800.0	800.0	800.0	1.7	1.7	-90.06	0.0	-30.8	30.8	27.4	3.37	9.140		
900.0	900.0	900.0	900.0	1.9	1.9	-90.06	0.0	-30.8	30.8	27.0	3.82	8.065		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.06	0.0	-30.8	30.8	26.5	4.27	7.216		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.06	0.0	-30.8	30.8	26.1	4.72	6.528		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.06	0.0	-30.8	30.8	25.6	5.17	5.961 CC, ES		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-160.66	0.0	-30.8	32.5	26.8	5.61	5.787		
1,400.0	1,399.8	1,399.8	1,399.8	3.0	3.0	-163.29	0.0	-30.8	37.4	31.4	6.04	6.203		
1,500.0	1,499.5	1,500.9	1,500.9	3.2	3.3	-165.66	0.8	-29.2	44.2	37.8	6.45	6.852		
1,600.0	1,598.7	1,602.3	1,602.1	3.5	3.5	-167.01	3.1	-24.4	51.1	44.2	6.85	7.451		
1,700.0	1,697.5	1,703.9	1,703.3	3.7	3.7	-167.69	7.1	-16.4	58.0	50.8	7.26	7.992		
1,800.0	1,796.0	1,805.6	1,804.2	4.0	3.9	-167.58	12.6	-5.1	63.2	55.5	7.70	8.215		
1,900.0	1,894.4	1,905.5	1,903.2	4.3	4.2	-167.10	18.7	7.3	67.1	58.9	8.15	8.233		
2,000.0	1,992.9	2,005.4	2,002.2	4.7	4.5	-166.68	24.8	19.6	70.9	62.3	8.61	8.242		
2,100.0	2,091.4	2,105.4	2,101.2	5.0	4.7	-166.30	30.8	32.0	74.8	65.7	9.07	8.243		
2,200.0	2,189.9	2,205.3	2,200.1	5.3	5.0	-165.95	36.9	44.4	78.6	69.1	9.54	8.240		
2,300.0	2,288.4	2,305.2	2,299.1	5.7	5.3	-165.64	43.0	56.7	82.5	72.5	10.02	8.232		
2,400.0	2,386.9	2,405.1	2,398.1	6.0	5.6	-165.36	49.1	69.1	86.4	75.9	10.51	8.221		
2,500.0	2,485.4	2,505.1	2,497.0	6.4	5.9	-165.10	55.2	81.5	90.2	79.2	10.99	8.208		
2,600.0	2,583.9	2,605.0	2,596.0	6.8	6.2	-164.86	61.2	93.9	94.1	82.6	11.48	8.193		
2,700.0	2,682.4	2,704.9	2,695.0	7.1	6.5	-164.64	67.3	106.2	98.0	86.0	11.98	8.178		
2,800.0	2,780.9	2,804.8	2,793.9	7.5	6.8	-164.44	73.4	118.6	101.8	89.3	12.48	8.161		
2,900.0	2,879.3	2,904.8	2,892.9	7.9	7.2	-164.25	79.5	131.0	105.7	92.7	12.98	8.144		
3,000.0	2,977.8	3,004.7	2,991.9	8.3	7.5	-164.07	85.5	143.3	109.6	96.1	13.48	8.127		
3,100.0	3,076.3	3,104.6	3,090.9	8.6	7.8	-163.91	91.6	155.7	113.4	99.4	13.99	8.110		
3,200.0	3,174.8	3,204.5	3,189.8	9.0	8.1	-163.76	97.7	168.1	117.3	102.8	14.49	8.093		
3,300.0	3,273.3	3,304.5	3,288.8	9.4	8.4	-163.62	103.8	180.4	121.2	106.2	15.00	8.076		
3,400.0	3,371.8	3,404.4	3,387.8	9.8	8.8	-163.48	109.9	192.8	125.0	109.5	15.51	8.060		
3,500.0	3,470.3	3,504.3	3,486.7	10.2	9.1	-163.36	115.9	205.2	128.9	112.9	16.03	8.043		
3,600.0	3,568.8	3,604.2	3,585.7	10.5	9.4	-163.24	122.0	217.5	132.8	116.2	16.54	8.027		
3,700.0	3,667.3	3,704.2	3,684.7	10.9	9.7	-163.13	128.1	229.9	136.7	119.6	17.06	8.012		
3,800.0	3,765.7	3,804.1	3,783.6	11.3	10.1	-163.02	134.2	242.3	140.5	123.0	17.57	7.996		
3,900.0	3,864.2	3,904.0	3,882.6	11.7	10.4	-162.92	140.3	254.7	144.4	126.3	18.09	7.981		
4,000.0	3,962.7	4,003.9	3,981.6	12.1	10.7	-162.83	146.3	267.0	148.3	129.7	18.61	7.967		
4,100.0	4,061.2	4,103.9	4,080.5	12.5	11.1	-162.74	152.4	279.4	152.2	133.0	19.13	7.953		
4,200.0	4,159.7	4,203.8	4,179.5	12.9	11.4	-162.65	158.5	291.8	156.0	136.4	19.65	7.939		
4,300.0	4,258.2	4,303.7	4,278.5	13.2	11.7	-162.57	164.6	304.1	159.9	139.7	20.17	7.926		
4,400.0	4,356.7	4,403.6	4,377.5	13.6	12.1	-162.49	170.6	316.5	163.8	143.1	20.70	7.913		
4,500.0	4,455.2	4,503.6	4,476.4	14.0	12.4	-162.42	176.7	328.9	167.7	146.4	21.22	7.900		
4,600.0	4,553.7	4,603.5	4,575.4	14.4	12.7	-162.35	182.8	341.2	171.5	149.8	21.75	7.888		
4,700.0	4,652.2	4,703.4	4,674.4	14.8	13.1	-162.28	188.9	353.6	175.4	153.1	22.27	7.876		
4,800.0	4,750.6	4,803.3	4,773.3	15.2	13.4	-162.22	195.0	366.0	179.3	156.5	22.80	7.865		
4,900.0	4,849.1	4,903.3	4,872.3	15.6	13.7	-162.16	201.0	378.3	183.2	159.8	23.32	7.854		
5,000.0	4,947.6	5,003.2	4,971.3	16.0	14.1	-162.10	207.1	390.7	187.0	163.2	23.85	7.843		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design		Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-423 - Wellbore #1 - Plan #2 (10-8-14)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.0	5,046.1	5,103.1	5,070.2	16.4	14.4	-162.04	213.2	403.1	190.9	166.5	24.38	7.832		
5,200.0	5,144.6	5,203.0	5,169.2	16.8	14.7	-161.99	219.3	415.5	194.8	169.9	24.90	7.822		
5,300.0	5,243.1	5,303.0	5,268.2	17.2	15.1	-161.93	225.4	427.8	198.7	173.2	25.43	7.812		
5,400.0	5,341.6	5,402.9	5,367.2	17.5	15.4	-161.87	231.4	440.2	202.3	176.3	25.96	7.792		
5,500.0	5,440.6	5,502.9	5,466.2	17.8	15.7	-161.56	237.5	452.6	203.3	176.8	26.48	7.675		
5,600.0	5,540.0	5,600.0	5,562.5	18.0	16.0	-161.00	243.2	464.1	201.5	174.5	26.97	7.470		
5,700.0	5,639.7	5,693.2	5,655.1	18.2	16.2	-160.48	247.3	472.6	199.2	171.8	27.37	7.276		
5,800.0	5,739.7	5,787.2	5,749.0	18.4	16.4	-160.01	250.2	478.4	196.5	168.8	27.73	7.088		
5,900.0	5,839.6	5,881.4	5,843.1	18.5	16.6	-90.08	251.7	481.5	193.9	165.8	28.07	6.907		
5,984.0	5,923.7	5,962.0	5,923.7	18.7	16.7	-90.01	252.0	482.0	193.3	165.0	28.38	6.814		
6,000.0	5,939.6	5,978.0	5,939.6	18.7	16.7	-90.01	252.0	482.0	193.3	164.9	28.43	6.799		
6,100.0	6,039.6	6,078.0	6,039.6	18.8	16.9	-90.01	252.0	482.0	193.3	164.5	28.82	6.709		
6,200.0	6,139.6	6,178.0	6,139.6	19.0	17.1	-90.01	252.0	482.0	193.3	164.1	29.20	6.620		
6,300.0	6,239.6	6,278.0	6,239.6	19.1	17.3	-90.01	252.0	482.0	193.3	163.7	29.59	6.533		
6,400.0	6,339.6	6,378.0	6,339.6	19.3	17.4	-90.01	252.0	482.0	193.3	163.4	29.98	6.448		
6,500.0	6,439.6	6,478.0	6,439.6	19.5	17.6	-90.01	252.0	482.0	193.3	163.0	30.38	6.365		
6,600.0	6,539.6	6,578.0	6,539.6	19.6	17.8	-90.01	252.0	482.0	193.3	162.6	30.77	6.283		
6,700.0	6,639.6	6,678.0	6,639.6	19.8	18.0	-90.01	252.0	482.0	193.3	162.2	31.16	6.204		
6,800.0	6,739.6	6,778.0	6,739.6	19.9	18.1	-90.01	252.0	482.0	193.3	161.8	31.56	6.126		
6,900.0	6,839.6	6,878.0	6,839.6	20.1	18.3	-90.01	252.0	482.0	193.3	161.4	31.96	6.049		
6,967.1	6,906.8	6,945.1	6,906.8	20.2	18.4	90.07	252.0	482.0	193.3	161.1	32.23	5.998		
7,000.0	6,939.6	6,978.0	6,939.6	20.3	18.5	90.01	252.0	482.0	193.3	161.0	32.36	5.975		
7,020.9	6,960.6	6,998.9	6,960.6	20.3	18.5	90.17	252.0	482.0	193.3	160.9	32.44	5.959		
7,100.0	7,039.3	7,077.6	7,039.3	20.4	18.7	92.29	252.0	482.0	193.5	160.6	32.92	5.878		
7,200.0	7,137.0	7,178.0	7,139.6	20.4	18.8	97.15	247.9	482.0	194.9	161.2	33.66	5.791		
7,300.0	7,231.2	7,281.1	7,241.0	20.5	18.9	101.96	230.5	482.0	197.8	163.6	34.18	5.785		
7,400.0	7,320.3	7,386.6	7,341.6	20.5	19.0	106.47	198.7	482.0	201.8	167.4	34.40	5.868		
7,500.0	7,402.7	7,494.7	7,439.0	20.5	19.0	110.57	152.0	482.0	206.8	172.5	34.27	6.034		
7,600.0	7,477.0	7,605.3	7,530.9	20.5	19.0	114.18	90.6	482.0	212.3	178.4	33.89	6.264		
7,700.0	7,541.9	7,718.5	7,614.6	20.6	19.0	117.26	14.7	482.0	217.8	184.4	33.40	6.521		
7,800.0	7,596.4	7,833.9	7,687.6	20.7	19.1	119.78	-74.6	482.0	223.0	190.0	33.06	6.746		
7,900.0	7,639.5	7,951.3	7,747.2	21.0	19.4	121.73	-175.7	482.0	227.5	194.4	33.11	6.872		
8,000.0	7,670.4	8,070.3	7,791.0	21.4	19.8	123.11	-286.1	482.0	230.9	197.1	33.79	6.835		
8,100.0	7,688.7	8,190.4	7,817.4	21.9	20.6	123.91	-403.2	482.0	233.0	197.8	35.22	6.616		
8,200.0	7,694.1	8,308.3	7,825.2	22.7	21.5	124.16	-520.8	482.0	233.6	196.3	37.33	6.259		
8,300.0	7,694.2	8,408.3	7,825.8	23.6	22.5	124.24	-620.8	482.0	233.9	194.7	39.18	5.969		
8,400.0	7,694.3	8,508.3	7,826.3	24.7	23.7	124.33	-720.8	482.0	234.1	192.9	41.21	5.681		
8,500.0	7,694.5	8,608.3	7,826.9	25.8	24.9	124.41	-820.8	482.0	234.3	191.0	43.38	5.403		
8,600.0	7,694.6	8,708.3	7,827.5	27.1	26.2	124.49	-920.7	482.0	234.6	188.9	45.67	5.136		
8,700.0	7,694.8	8,808.3	7,828.0	28.4	27.6	124.58	-1,020.7	482.0	234.8	186.7	48.07	4.885		
8,800.0	7,694.9	8,908.3	7,828.6	29.8	29.0	124.66	-1,120.7	482.0	235.1	184.5	50.57	4.649		
8,900.0	7,695.0	9,008.3	7,829.1	31.2	30.5	124.75	-1,220.7	482.0	235.3	182.2	53.13	4.428		
9,000.0	7,695.2	9,108.3	7,829.7	32.7	32.0	124.83	-1,320.7	482.0	235.5	179.8	55.77	4.224		
9,100.0	7,695.3	9,208.3	7,830.3	34.3	33.6	124.91	-1,420.7	482.0	235.8	177.3	58.45	4.033		
9,200.0	7,695.5	9,308.3	7,830.8	35.8	35.2	125.00	-1,520.7	482.0	236.0	174.8	61.19	3.857		
9,300.0	7,695.6	9,408.3	7,831.4	37.5	36.9	125.08	-1,620.7	482.0	236.3	172.3	63.96	3.694		
9,400.0	7,695.7	9,508.3	7,831.9	39.1	38.5	125.16	-1,720.7	482.0	236.5	169.7	66.77	3.542		
9,500.0	7,695.9	9,608.3	7,832.5	40.7	40.2	125.25	-1,820.7	482.0	236.7	167.1	69.61	3.401		
9,600.0	7,696.0	9,708.3	7,833.1	42.4	41.9	125.33	-1,920.7	482.0	237.0	164.5	72.48	3.270		
9,700.0	7,696.2	9,808.3	7,833.6	44.1	43.6	125.41	-2,020.7	482.0	237.2	161.9	75.36	3.148		

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

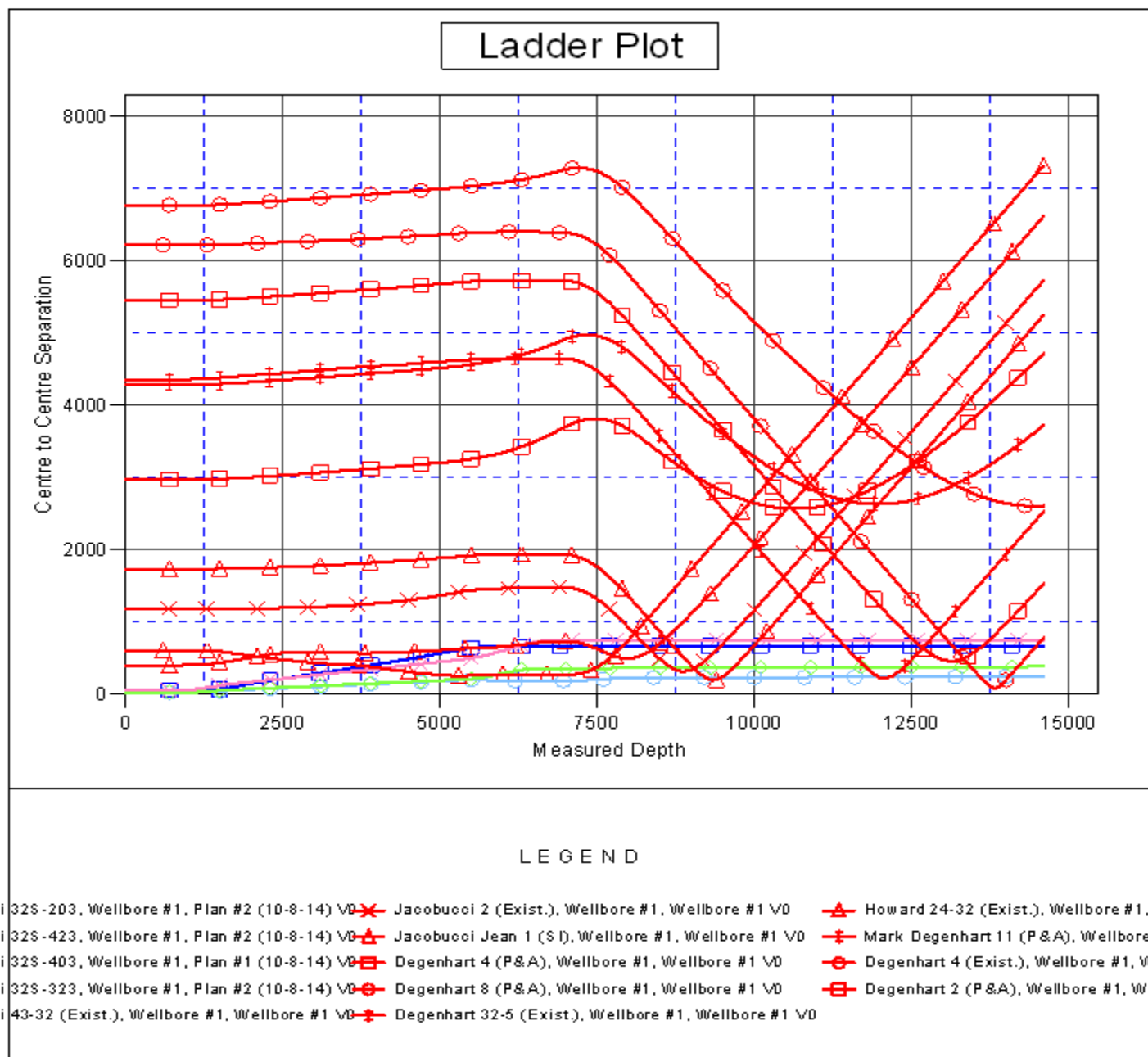
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
9,800.0	7,696.3	9,908.3	7,834.2	45.8	45.4	125.49	-2,120.7	482.0	237.5	159.2	78.27	3.034			
9,900.0	7,696.4	10,008.3	7,834.7	47.6	47.1	125.58	-2,220.7	482.0	237.7	156.5	81.19	2.928			
10,000.0	7,696.6	10,108.3	7,835.3	49.3	48.9	125.66	-2,320.7	482.0	238.0	153.8	84.13	2.828			
10,100.0	7,696.7	10,208.3	7,835.8	51.1	50.7	125.74	-2,420.7	482.0	238.2	151.1	87.07	2.736			
10,200.0	7,696.9	10,308.3	7,836.4	52.8	52.4	125.82	-2,520.7	482.0	238.4	148.4	90.03	2.648			
10,300.0	7,697.0	10,408.3	7,837.0	54.6	54.2	125.90	-2,620.7	482.0	238.7	145.7	93.00	2.567			
10,400.0	7,697.1	10,508.3	7,837.5	56.4	56.0	125.98	-2,720.7	482.0	238.9	143.0	95.97	2.490			
10,500.0	7,697.3	10,608.3	7,838.1	58.2	57.8	126.07	-2,820.7	482.0	239.2	140.2	98.95	2.417			
10,600.0	7,697.4	10,708.3	7,838.6	60.0	59.7	126.15	-2,920.7	482.0	239.4	137.5	101.94	2.349			
10,700.0	7,697.5	10,808.3	7,839.2	61.8	61.5	126.23	-3,020.7	482.0	239.7	134.7	104.92	2.284			
10,800.0	7,697.7	10,908.3	7,839.8	63.6	63.3	126.31	-3,120.7	482.0	239.9	132.0	107.92	2.223			
10,900.0	7,697.8	11,008.3	7,840.3	65.5	65.1	126.39	-3,220.7	482.0	240.2	129.3	110.91	2.165			
11,000.0	7,698.0	11,108.3	7,840.9	67.3	67.0	126.47	-3,320.7	482.0	240.4	126.5	113.91	2.111			
11,100.0	7,698.1	11,208.3	7,841.4	69.1	68.8	126.55	-3,420.7	482.0	240.7	123.8	116.91	2.059			
11,200.0	7,698.2	11,308.3	7,842.0	71.0	70.6	126.63	-3,520.7	482.0	240.9	121.0	119.91	2.009			
11,300.0	7,698.4	11,408.3	7,842.5	72.8	72.5	126.71	-3,620.7	482.0	241.2	118.3	122.91	1.962			
11,400.0	7,698.5	11,508.3	7,843.1	74.6	74.3	126.79	-3,720.7	482.0	241.4	115.5	125.91	1.917			
11,500.0	7,698.7	11,608.3	7,843.7	76.5	76.2	126.87	-3,820.7	482.0	241.7	112.8	128.91	1.875			
11,600.0	7,698.8	11,708.3	7,844.2	78.3	78.1	126.95	-3,920.7	482.0	241.9	110.0	131.91	1.834			
11,700.0	7,698.9	11,808.3	7,844.8	80.2	79.9	127.03	-4,020.7	482.0	242.2	107.3	134.91	1.795			
11,800.0	7,699.1	11,908.3	7,845.3	82.0	81.8	127.11	-4,120.7	482.0	242.4	104.5	137.91	1.758			
11,900.0	7,699.2	12,008.3	7,845.9	83.9	83.6	127.18	-4,220.7	482.0	242.7	101.8	140.90	1.722			
12,000.0	7,699.4	12,108.3	7,846.5	85.8	85.5	127.26	-4,320.7	482.0	242.9	99.0	143.90	1.688			
12,100.0	7,699.5	12,208.3	7,847.0	87.6	87.4	127.34	-4,420.7	482.0	243.2	96.3	146.89	1.656			
12,200.0	7,699.6	12,308.3	7,847.6	89.5	89.3	127.42	-4,520.7	482.0	243.4	93.6	149.88	1.624			
12,300.0	7,699.8	12,408.3	7,848.1	91.4	91.1	127.50	-4,620.7	482.0	243.7	90.8	152.87	1.594			
12,400.0	7,699.9	12,508.3	7,848.7	93.2	93.0	127.58	-4,720.7	482.0	244.0	88.1	155.85	1.565			
12,500.0	7,700.1	12,608.3	7,849.2	95.1	94.9	127.65	-4,820.7	482.0	244.2	85.4	158.84	1.537			
12,600.0	7,700.2	12,708.3	7,849.8	97.0	96.8	127.73	-4,920.7	482.0	244.5	82.6	161.82	1.511			
12,700.0	7,700.3	12,808.3	7,850.4	98.8	98.6	127.81	-5,020.6	482.0	244.7	79.9	164.79	1.485 Level 3			
12,800.0	7,700.5	12,908.3	7,850.9	100.7	100.5	127.89	-5,120.6	482.0	245.0	77.2	167.77	1.460 Level 3			
12,900.0	7,700.6	13,008.3	7,851.5	102.6	102.4	127.96	-5,220.6	482.0	245.2	74.5	170.74	1.436 Level 3			
13,000.0	7,700.8	13,108.3	7,852.0	104.5	104.3	128.04	-5,320.6	482.0	245.5	71.8	173.71	1.413 Level 3			
13,100.0	7,700.9	13,208.3	7,852.6	106.4	106.2	128.12	-5,420.6	482.0	245.7	69.1	176.67	1.391 Level 3			
13,200.0	7,701.0	13,308.3	7,853.2	108.2	108.0	128.20	-5,520.6	482.0	246.0	66.4	179.63	1.370 Level 3			
13,300.0	7,701.2	13,408.3	7,853.7	110.1	109.9	128.27	-5,620.6	482.0	246.3	63.7	182.59	1.349 Level 3			
13,400.0	7,701.3	13,508.3	7,854.3	112.0	111.8	128.35	-5,720.6	482.0	246.5	61.0	185.55	1.329 Level 3			
13,500.0	7,701.5	13,608.3	7,854.8	113.9	113.7	128.42	-5,820.6	482.0	246.8	58.3	188.50	1.309 Level 3			
13,600.0	7,701.6	13,708.3	7,855.4	115.8	115.6	128.50	-5,920.6	482.0	247.0	55.6	191.44	1.290 Level 3			
13,700.0	7,701.7	13,808.3	7,855.9	117.7	117.5	128.58	-6,020.6	482.0	247.3	52.9	194.39	1.272 Level 3			
13,800.0	7,701.9	13,908.3	7,856.5	119.6	119.4	128.65	-6,120.6	482.0	247.6	50.2	197.33	1.255 Level 3			
13,900.0	7,702.0	14,008.3	7,857.1	121.4	121.3	128.73	-6,220.6	482.0	247.8	47.6	200.26	1.238 Level 2			
14,000.0	7,702.2	14,108.3	7,857.6	123.3	123.2	128.80	-6,320.6	482.0	248.1	44.9	203.19	1.221 Level 2			
14,100.0	7,702.3	14,208.3	7,858.2	125.2	125.1	128.88	-6,420.6	482.0	248.4	42.2	206.12	1.205 Level 2			
14,200.0	7,702.4	14,308.3	7,858.7	127.1	127.0	128.95	-6,520.6	482.0	248.6	39.6	209.04	1.189 Level 2			
14,300.0	7,702.6	14,408.3	7,859.3	129.0	128.8	129.03	-6,620.6	482.0	248.9	36.9	211.96	1.174 Level 2			
14,400.0	7,702.7	14,508.3	7,859.9	130.9	130.7	129.10	-6,720.6	482.0	249.1	34.3	214.88	1.159 Level 2			
14,500.0	7,702.9	14,608.3	7,860.4	132.8	132.6	129.18	-6,820.6	482.0	249.4	31.6	217.79	1.145 Level 2			
14,600.0	7,703.0	14,708.3	7,861.0	134.7	134.5	129.25	-6,920.6	482.0	249.7	29.0	220.67	1.131 Level 2			
14,603.6	7,703.0	14,711.9	7,861.0	134.7	134.6	129.26	-6,924.2	482.0	249.7	28.9	220.76	1.131 Level 2, SF			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5074.0ft (Original Well Elev) Coordinates are relative to: Jacobucci 32S-303
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.38°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32S-303
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5074.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5074.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32S-303	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-8-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5074.0ft (Original Well Elev) Coordinates are relative to: Jacobucci 32S-303

Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, Colorado Northern Zone

Central Meridian is -105.500000 °

Grid Convergence at Surface is: 0.38°

