PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Jacobucci 32S-323**

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	Latittude	Longitude	Slot
0.0	0.0	1245853.63	3164992.92	40.006750	-104.911000	

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

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2338'FSL & 1720'FEL, Sec.32	1.0	0.0	0.0	Point
BHL 500'FSL & 779'FEL, Sec.5	7703.0	-6921.4	1373.0	Point

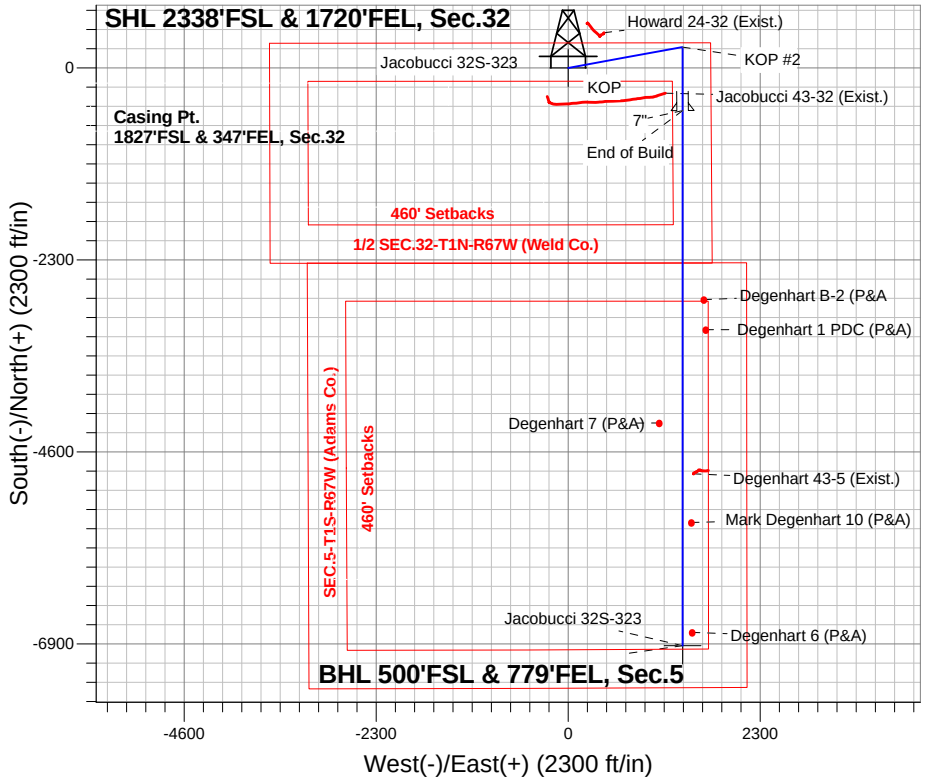
Azimuths to True North
Magnetic North: 8.46°

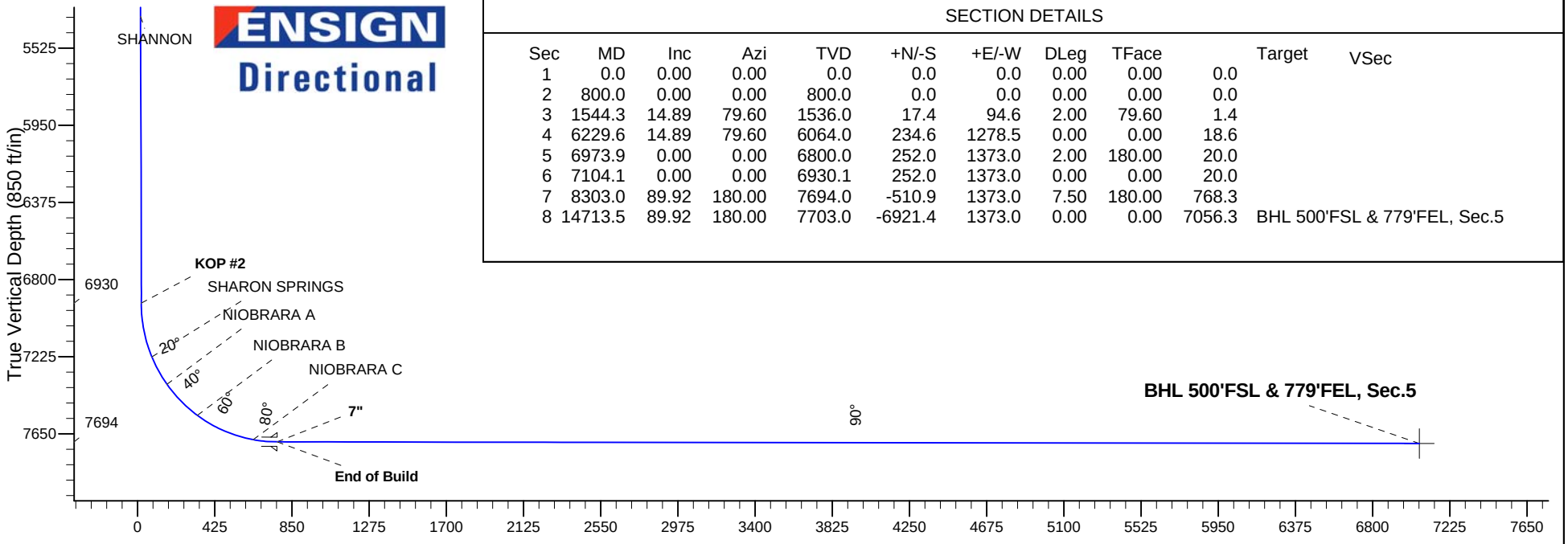
Magnetic Field
Strength: 52558.0snT
Dip Angle: 66.59°
Date: 10/8/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
800.0	800.0	KOP
6930.2	7104.1	KOP #2
7694.0	8303.0	End of Build

Jacobucci 1N67W32S Pad Sec.32-T1N-R67W
Jacobucci 32S-323
Plan #2 (10-8-14)
9:34, October 17 2014





SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1544.3	14.89	79.60	1536.0	17.4	94.6	2.00	79.60	1.4	
4	6229.6	14.89	79.60	6064.0	234.6	1278.5	0.00	0.00	18.6	
5	6973.9	0.00	0.00	6800.0	252.0	1373.0	2.00	180.00	20.0	
6	7104.1	0.00	0.00	6930.1	252.0	1373.0	0.00	0.00	20.0	
7	8303.0	89.92	180.00	7694.0	-510.9	1373.0	7.50	180.00	768.3	
8	14713.5	89.92	180.00	7703.0	-6921.4	1373.0	0.00	0.00	7056.3	BHL 500'FSL & 779'FEL, Sec.5

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T1N-R67W
Jacobucci 1N67W32S Pad Sec.32-T1N-R67W
Jacobucci 32S-323

Wellbore #1

Plan: Plan #2 (10-8-14)

Standard Planning Report

17 October, 2014

PDC ENERGY
Growing E&P Value

Database:	Landmark	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (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:**	1,245,853.29 ft	**Latitude:**	40.006750
From:	Lat/Long	**Easting:**	3,164,939.70 ft	**Longitude:**	-104.911190
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.38 °

Well Jacobucci 32S-323

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,245,853.63 ft	**Latitude:**	40.006750
	+E/-W	53.2 ft	**Easting:**	3,164,992.92 ft	**Longitude:**	-104.911000
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 #2 (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	168.78

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,544.3	14.89	79.60	1,536.0	17.4	94.6	2.00	2.00	0.00	79.60	
6,229.6	14.89	79.60	6,064.0	234.6	1,278.5	0.00	0.00	0.00	0.00	
6,973.9	0.00	0.00	6,800.0	252.0	1,373.0	2.00	-2.00	0.00	180.00	
7,104.1	0.00	0.00	6,930.1	252.0	1,373.0	0.00	0.00	0.00	0.00	
8,303.0	89.92	180.00	7,694.0	-510.9	1,373.0	7.50	7.50	0.00	180.00	
14,713.5	89.92	180.00	7,703.0	-6,921.4	1,373.0	0.00	0.00	0.00	0.00	BHL 500'FSL & 779

Database:	Landmark	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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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-323	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (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
KOP									
900.0	2.00	79.60	900.0	0.3	1.7	0.0	2.00	2.00	0.00
1,000.0	4.00	79.60	999.8	1.3	6.9	0.1	2.00	2.00	0.00
1,100.0	6.00	79.60	1,099.5	2.8	15.4	0.2	2.00	2.00	0.00
1,200.0	8.00	79.60	1,198.7	5.0	27.4	0.4	2.00	2.00	0.00
1,300.0	10.00	79.60	1,297.5	7.9	42.8	0.6	2.00	2.00	0.00
1,400.0	12.00	79.60	1,395.6	11.3	61.6	0.9	2.00	2.00	0.00
1,500.0	14.00	79.60	1,493.1	15.4	83.7	1.2	2.00	2.00	0.00
1,544.3	14.89	79.60	1,536.0	17.4	94.6	1.4	2.00	2.00	0.00
1,600.0	14.89	79.60	1,589.8	19.9	108.6	1.6	0.00	0.00	0.00
1,700.0	14.89	79.60	1,686.4	24.6	133.9	1.9	0.00	0.00	0.00
1,800.0	14.89	79.60	1,783.1	29.2	159.2	2.3	0.00	0.00	0.00
1,900.0	14.89	79.60	1,879.7	33.9	184.4	2.7	0.00	0.00	0.00
2,000.0	14.89	79.60	1,976.4	38.5	209.7	3.1	0.00	0.00	0.00
2,100.0	14.89	79.60	2,073.0	43.1	235.0	3.4	0.00	0.00	0.00
2,200.0	14.89	79.60	2,169.6	47.8	260.3	3.8	0.00	0.00	0.00
2,300.0	14.89	79.60	2,266.3	52.4	285.5	4.2	0.00	0.00	0.00
2,400.0	14.89	79.60	2,362.9	57.0	310.8	4.5	0.00	0.00	0.00
2,500.0	14.89	79.60	2,459.6	61.7	336.1	4.9	0.00	0.00	0.00
2,600.0	14.89	79.60	2,556.2	66.3	361.3	5.3	0.00	0.00	0.00
2,700.0	14.89	79.60	2,652.9	71.0	386.6	5.6	0.00	0.00	0.00
2,800.0	14.89	79.60	2,749.5	75.6	411.9	6.0	0.00	0.00	0.00
2,900.0	14.89	79.60	2,846.2	80.2	437.1	6.4	0.00	0.00	0.00
3,000.0	14.89	79.60	2,942.8	84.9	462.4	6.7	0.00	0.00	0.00
3,100.0	14.89	79.60	3,039.4	89.5	487.7	7.1	0.00	0.00	0.00
3,200.0	14.89	79.60	3,136.1	94.1	512.9	7.5	0.00	0.00	0.00
3,300.0	14.89	79.60	3,232.7	98.8	538.2	7.8	0.00	0.00	0.00
3,400.0	14.89	79.60	3,329.4	103.4	563.5	8.2	0.00	0.00	0.00
3,500.0	14.89	79.60	3,426.0	108.1	588.7	8.6	0.00	0.00	0.00
3,600.0	14.89	79.60	3,522.7	112.7	614.0	8.9	0.00	0.00	0.00
3,700.0	14.89	79.60	3,619.3	117.3	639.3	9.3	0.00	0.00	0.00
3,800.0	14.89	79.60	3,715.9	122.0	664.5	9.7	0.00	0.00	0.00
3,900.0	14.89	79.60	3,812.6	126.6	689.8	10.0	0.00	0.00	0.00
4,000.0	14.89	79.60	3,909.2	131.2	715.1	10.4	0.00	0.00	0.00
4,100.0	14.89	79.60	4,005.9	135.9	740.4	10.8	0.00	0.00	0.00
4,200.0	14.89	79.60	4,102.5	140.5	765.6	11.1	0.00	0.00	0.00
4,300.0	14.89	79.60	4,199.2	145.2	790.9	11.5	0.00	0.00	0.00
4,400.0	14.89	79.60	4,295.8	149.8	816.2	11.9	0.00	0.00	0.00
4,500.0	14.89	79.60	4,392.5	154.4	841.4	12.3	0.00	0.00	0.00
4,600.0	14.89	79.60	4,489.1	159.1	866.7	12.6	0.00	0.00	0.00
4,611.3	14.89	79.60	4,500.0	159.6	869.5	12.7	0.00	0.00	0.00
PARKMAN									
4,700.0	14.89	79.60	4,585.7	163.7	892.0	13.0	0.00	0.00	0.00

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Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	**North Reference:**	True
Well:	Jacobucci 32S-323	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (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	14.89	79.60	4,682.4	168.3	917.2	13.4	0.00	0.00	0.00
4,900.0	14.89	79.60	4,779.0	173.0	942.5	13.7	0.00	0.00	0.00
5,000.0	14.89	79.60	4,875.7	177.6	967.8	14.1	0.00	0.00	0.00
5,025.2	14.89	79.60	4,900.0	178.8	974.1	14.2	0.00	0.00	0.00
SUSSEX									
5,100.0	14.89	79.60	4,972.3	182.3	993.0	14.5	0.00	0.00	0.00
5,200.0	14.89	79.60	5,069.0	186.9	1,018.3	14.8	0.00	0.00	0.00
5,300.0	14.89	79.60	5,165.6	191.5	1,043.6	15.2	0.00	0.00	0.00
5,400.0	14.89	79.60	5,262.2	196.2	1,068.8	15.6	0.00	0.00	0.00
5,490.8	14.89	79.60	5,350.0	200.4	1,091.8	15.9	0.00	0.00	0.00
SHANNON									
5,500.0	14.89	79.60	5,358.9	200.8	1,094.1	15.9	0.00	0.00	0.00
5,600.0	14.89	79.60	5,455.5	205.4	1,119.4	16.3	0.00	0.00	0.00
5,700.0	14.89	79.60	5,552.2	210.1	1,144.6	16.7	0.00	0.00	0.00
5,800.0	14.89	79.60	5,648.8	214.7	1,169.9	17.0	0.00	0.00	0.00
5,900.0	14.89	79.60	5,745.5	219.4	1,195.2	17.4	0.00	0.00	0.00
6,000.0	14.89	79.60	5,842.1	224.0	1,220.5	17.8	0.00	0.00	0.00
6,100.0	14.89	79.60	5,938.7	228.6	1,245.7	18.1	0.00	0.00	0.00
6,200.0	14.89	79.60	6,035.4	233.3	1,271.0	18.5	0.00	0.00	0.00
6,229.6	14.89	79.60	6,064.0	234.6	1,278.5	18.6	0.00	0.00	0.00
6,300.0	13.48	79.60	6,132.3	237.8	1,295.4	18.9	2.00	-2.00	0.00
6,400.0	11.48	79.60	6,229.9	241.7	1,316.7	19.2	2.00	-2.00	0.00
6,500.0	9.48	79.60	6,328.2	244.9	1,334.6	19.4	2.00	-2.00	0.00
6,600.0	7.48	79.60	6,427.1	247.6	1,349.1	19.6	2.00	-2.00	0.00
6,700.0	5.48	79.60	6,526.5	249.6	1,360.2	19.8	2.00	-2.00	0.00
6,800.0	3.48	79.60	6,626.2	251.0	1,367.9	19.9	2.00	-2.00	0.00
6,900.0	1.48	79.60	6,726.1	251.8	1,372.1	20.0	2.00	-2.00	0.00
6,973.9	0.00	0.00	6,800.0	252.0	1,373.0	20.0	2.00	-2.00	0.00
7,000.0	0.00	0.00	6,826.1	252.0	1,373.0	20.0	0.00	0.00	0.00
7,100.0	0.00	0.00	6,926.1	252.0	1,373.0	20.0	0.00	0.00	0.00
7,104.1	0.00	0.00	6,930.2	252.0	1,373.0	20.0	0.00	0.00	0.00
KOP #2									
7,200.0	7.20	180.00	7,025.8	246.0	1,373.0	25.9	7.50	7.50	0.00
7,300.0	14.70	180.00	7,123.9	227.0	1,373.0	44.5	7.50	7.50	0.00
7,400.0	22.20	180.00	7,218.7	195.4	1,373.0	75.5	7.50	7.50	0.00
7,407.9	22.79	180.00	7,226.0	192.4	1,373.0	78.5	7.50	7.50	0.00
SHARON SPRINGS									
7,500.0	29.70	180.00	7,308.6	151.7	1,373.0	118.4	7.50	7.50	0.00
7,581.4	35.80	180.00	7,377.0	107.6	1,373.0	161.6	7.50	7.50	0.00
NIOBRARA A									
7,600.0	37.20	180.00	7,391.9	96.6	1,373.0	172.4	7.50	7.50	0.00
7,700.0	44.70	180.00	7,467.4	31.1	1,373.0	236.7	7.50	7.50	0.00
7,800.0	52.20	180.00	7,533.7	-43.7	1,373.0	310.0	7.50	7.50	0.00
7,823.8	53.98	180.00	7,548.0	-62.7	1,373.0	328.7	7.50	7.50	0.00
NIOBRARA B									
7,900.0	59.70	180.00	7,589.7	-126.5	1,373.0	391.2	7.50	7.50	0.00
8,000.0	67.20	180.00	7,634.3	-215.9	1,373.0	478.9	7.50	7.50	0.00
8,100.0	74.70	180.00	7,667.0	-310.3	1,373.0	571.6	7.50	7.50	0.00
8,168.2	79.81	180.00	7,682.0	-376.8	1,373.0	636.8	7.50	7.50	0.00
NIOBRARA C									
8,200.0	82.20	180.00	7,687.0	-408.2	1,373.0	667.6	7.50	7.50	0.00
8,300.0	89.70	180.00	7,694.0	-507.9	1,373.0	765.4	7.50	7.50	0.00

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Site:	Jacobucci 1N67W32S Pad Sec.32-T1N-R67W	**North Reference:**	True
Well:	Jacobucci 32S-323	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (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)
8,303.0	89.92	180.00	7,694.0	-510.9	1,373.0	768.3	7.47	7.47	0.00
End of Build - 7"									
8,400.0	89.92	180.00	7,694.2	-607.9	1,373.0	863.4	0.00	0.00	0.00
8,500.0	89.92	180.00	7,694.3	-707.9	1,373.0	961.5	0.00	0.00	0.00
8,600.0	89.92	180.00	7,694.5	-807.9	1,373.0	1,059.6	0.00	0.00	0.00
8,700.0	89.92	180.00	7,694.6	-907.9	1,373.0	1,157.7	0.00	0.00	0.00
8,800.0	89.92	180.00	7,694.7	-1,007.9	1,373.0	1,255.8	0.00	0.00	0.00
8,900.0	89.92	180.00	7,694.9	-1,107.9	1,373.0	1,353.9	0.00	0.00	0.00
9,000.0	89.92	180.00	7,695.0	-1,207.9	1,373.0	1,452.0	0.00	0.00	0.00
9,100.0	89.92	180.00	7,695.2	-1,307.9	1,373.0	1,550.1	0.00	0.00	0.00
9,200.0	89.92	180.00	7,695.3	-1,407.9	1,373.0	1,648.2	0.00	0.00	0.00
9,300.0	89.92	180.00	7,695.4	-1,507.9	1,373.0	1,746.2	0.00	0.00	0.00
9,400.0	89.92	180.00	7,695.6	-1,607.9	1,373.0	1,844.3	0.00	0.00	0.00
9,500.0	89.92	180.00	7,695.7	-1,707.9	1,373.0	1,942.4	0.00	0.00	0.00
9,600.0	89.92	180.00	7,695.9	-1,807.9	1,373.0	2,040.5	0.00	0.00	0.00
9,700.0	89.92	180.00	7,696.0	-1,907.9	1,373.0	2,138.6	0.00	0.00	0.00
9,800.0	89.92	180.00	7,696.1	-2,007.9	1,373.0	2,236.7	0.00	0.00	0.00
9,900.0	89.92	180.00	7,696.3	-2,107.9	1,373.0	2,334.8	0.00	0.00	0.00
10,000.0	89.92	180.00	7,696.4	-2,207.9	1,373.0	2,432.9	0.00	0.00	0.00
10,100.0	89.92	180.00	7,696.6	-2,307.9	1,373.0	2,531.0	0.00	0.00	0.00
10,200.0	89.92	180.00	7,696.7	-2,407.9	1,373.0	2,629.0	0.00	0.00	0.00
10,300.0	89.92	180.00	7,696.8	-2,507.9	1,373.0	2,727.1	0.00	0.00	0.00
10,400.0	89.92	180.00	7,697.0	-2,607.9	1,373.0	2,825.2	0.00	0.00	0.00
10,500.0	89.92	180.00	7,697.1	-2,707.9	1,373.0	2,923.3	0.00	0.00	0.00
10,600.0	89.92	180.00	7,697.3	-2,807.9	1,373.0	3,021.4	0.00	0.00	0.00
10,700.0	89.92	180.00	7,697.4	-2,907.9	1,373.0	3,119.5	0.00	0.00	0.00
10,800.0	89.92	180.00	7,697.5	-3,007.9	1,373.0	3,217.6	0.00	0.00	0.00
10,900.0	89.92	180.00	7,697.7	-3,107.9	1,373.0	3,315.7	0.00	0.00	0.00
11,000.0	89.92	180.00	7,697.8	-3,207.9	1,373.0	3,413.7	0.00	0.00	0.00
11,100.0	89.92	180.00	7,698.0	-3,307.9	1,373.0	3,511.8	0.00	0.00	0.00
11,200.0	89.92	180.00	7,698.1	-3,407.9	1,373.0	3,609.9	0.00	0.00	0.00
11,300.0	89.92	180.00	7,698.2	-3,507.9	1,373.0	3,708.0	0.00	0.00	0.00
11,400.0	89.92	180.00	7,698.4	-3,607.9	1,373.0	3,806.1	0.00	0.00	0.00
11,500.0	89.92	180.00	7,698.5	-3,707.9	1,373.0	3,904.2	0.00	0.00	0.00
11,600.0	89.92	180.00	7,698.7	-3,807.9	1,373.0	4,002.3	0.00	0.00	0.00
11,700.0	89.92	180.00	7,698.8	-3,907.9	1,373.0	4,100.4	0.00	0.00	0.00
11,800.0	89.92	180.00	7,698.9	-4,007.9	1,373.0	4,198.5	0.00	0.00	0.00
11,900.0	89.92	180.00	7,699.1	-4,107.9	1,373.0	4,296.5	0.00	0.00	0.00
12,000.0	89.92	180.00	7,699.2	-4,207.9	1,373.0	4,394.6	0.00	0.00	0.00
12,100.0	89.92	180.00	7,699.4	-4,307.9	1,373.0	4,492.7	0.00	0.00	0.00
12,200.0	89.92	180.00	7,699.5	-4,407.9	1,373.0	4,590.8	0.00	0.00	0.00
12,300.0	89.92	180.00	7,699.6	-4,507.9	1,373.0	4,688.9	0.00	0.00	0.00
12,400.0	89.92	180.00	7,699.8	-4,607.9	1,373.0	4,787.0	0.00	0.00	0.00
12,500.0	89.92	180.00	7,699.9	-4,707.9	1,373.0	4,885.1	0.00	0.00	0.00
12,600.0	89.92	180.00	7,700.0	-4,807.9	1,373.0	4,983.2	0.00	0.00	0.00
12,700.0	89.92	180.00	7,700.2	-4,907.9	1,373.0	5,081.3	0.00	0.00	0.00
12,800.0	89.92	180.00	7,700.3	-5,007.9	1,373.0	5,179.3	0.00	0.00	0.00
12,900.0	89.92	180.00	7,700.5	-5,107.9	1,373.0	5,277.4	0.00	0.00	0.00
13,000.0	89.92	180.00	7,700.6	-5,207.9	1,373.0	5,375.5	0.00	0.00	0.00
13,100.0	89.92	180.00	7,700.7	-5,307.9	1,373.0	5,473.6	0.00	0.00	0.00
13,200.0	89.92	180.00	7,700.9	-5,407.9	1,373.0	5,571.7	0.00	0.00	0.00
13,300.0	89.92	180.00	7,701.0	-5,507.9	1,373.0	5,669.8	0.00	0.00	0.00

Database:	Landmark	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (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	7,701.2	-5,607.9	1,373.0	5,767.9	0.00	0.00	0.00
13,500.0	89.92	180.00	7,701.3	-5,707.9	1,373.0	5,866.0	0.00	0.00	0.00
13,600.0	89.92	180.00	7,701.4	-5,807.9	1,373.0	5,964.0	0.00	0.00	0.00
13,700.0	89.92	180.00	7,701.6	-5,907.9	1,373.0	6,062.1	0.00	0.00	0.00
13,800.0	89.92	180.00	7,701.7	-6,007.9	1,373.0	6,160.2	0.00	0.00	0.00
13,900.0	89.92	180.00	7,701.9	-6,107.9	1,373.0	6,258.3	0.00	0.00	0.00
14,000.0	89.92	180.00	7,702.0	-6,207.9	1,373.0	6,356.4	0.00	0.00	0.00
14,100.0	89.92	180.00	7,702.1	-6,307.9	1,373.0	6,454.5	0.00	0.00	0.00
14,200.0	89.92	180.00	7,702.3	-6,407.9	1,373.0	6,552.6	0.00	0.00	0.00
14,300.0	89.92	180.00	7,702.4	-6,507.9	1,373.0	6,650.7	0.00	0.00	0.00
14,400.0	89.92	180.00	7,702.6	-6,607.9	1,373.0	6,748.8	0.00	0.00	0.00
14,500.0	89.92	180.00	7,702.7	-6,707.9	1,373.0	6,846.8	0.00	0.00	0.00
14,600.0	89.92	180.00	7,702.8	-6,807.9	1,373.0	6,944.9	0.00	0.00	0.00
14,700.0	89.92	180.00	7,703.0	-6,907.9	1,373.0	7,043.0	0.00	0.00	0.00
14,713.5	89.92	180.00	7,703.0	-6,921.4	1,373.0	7,056.3	0.00	0.00	0.00

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 500'FSL & 779'F - plan hits target center - Point	0.00	0.00	7,703.0	-6,921.4	1,373.0	1,238,941.75	3,166,411.86	39.987750	-104.906100
SHL 2338'FSL & 172(- plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,245,853.64	3,164,992.92	40.006750	-104.911000

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
8,303.0	7,694.0	7"	7	7-1/2

Database:	Landmark	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (10-8-14)		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,611.3	4,500.0	PARKMAN		0.00	
5,025.2	4,900.0	SUSSEX		0.00	
5,490.8	5,350.0	SHANNON		0.00	
7,407.9	7,226.0	SHARON SPRINGS		0.00	
7,581.4	7,377.0	NIOBRARA A		0.00	
7,823.8	7,548.0	NIOBRARA B		0.00	
8,168.2	7,682.0	NIOBRARA C		0.00	
	7,818.0	FT HAYS		0.00	
	7,839.0	CODELL		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
800.0	800.0	0.0	0.0	KOP
7,104.1	6,930.2	252.0	1,373.0	KOP #2
8,303.0	7,694.0	-510.9	1,373.0	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T1N-R67W
Jacobucci 1N67W32S Pad Sec.32-T1N-R67W
Jacobucci 32S-323

Wellbore #1
Plan #2 (10-8-14)

Anticollision Report

17 October, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Reference Plan #2 (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** 10/17/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,713.5	Plan #2 (10-8-14) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Existings Sec.32-T1N-R67W						
Degenhart 1 PDC (P&A) - Wellbore #1 - Wellbore #1	10,926.7	7,727.7	278.3	60.2	1.276	Level 3, CC, ES, SF
Degenhart 43-5 (Exist.) - Wellbore #1 - Wellbore #1	12,651.5	7,755.7	131.6	17.1	1.149	Level 2, CC, ES, SF
Degenhart 6 (P&A) - Wellbore #1 - Wellbore #1	14,550.0	5,210.0	2,591.3	2,532.5	44.044	CC, ES
Degenhart 6 (P&A) - Wellbore #1 - Wellbore #1	14,713.5	5,210.0	2,596.5	2,536.4	43.258	SF
Degenhart 7 (P&A) - Wellbore #1 - Wellbore #1	6,000.0	5,135.0	4,524.3	4,394.4	34.821	SF
Degenhart 7 (P&A) - Wellbore #1 - Wellbore #1	12,040.2	5,135.0	2,523.0	2,476.1	53.892	CC, ES
Degenhart B-2 (P&A - Wellbore #1 - Wellbore #1	5,600.0	5,122.0	3,042.3	2,914.5	23.814	SF
Degenhart B-2 (P&A - Wellbore #1 - Wellbore #1	10,561.0	5,122.0	2,613.6	2,577.0	71.350	CC, ES
Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1	2,397.9	2,361.9	484.4	471.5	37.427	CC
Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1	2,500.0	2,461.8	485.0	471.3	35.466	ES
Howard 24-32 (Exist.) - Wellbore #1 - Wellbore #1	5,000.0	4,973.1	676.5	650.4	25.972	SF
Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1	8,110.8	7,876.4	256.2	218.0	6.717	CC, ES, SF
Mark Degenhart 10 (P&A) - Wellbore #1 - Wellbore #1	6,300.0	5,160.0	5,776.8	5,644.6	43.695	SF
Mark Degenhart 10 (P&A) - Wellbore #1 - Wellbore #1	13,231.2	5,160.0	2,605.1	2,556.3	53.369	CC, ES
Jacobucci 1N67W32S Pad Sec.32-T1N-R67W						
Jacobucci 32S-203 - Wellbore #1 - Plan #2 (10-8-14)	800.0	800.0	114.9	111.5	34.067	CC, ES
Jacobucci 32S-203 - Wellbore #1 - Plan #2 (10-8-14)	14,713.5	14,461.9	1,423.4	1,155.3	5.309	SF
Jacobucci 32S-303 - Wellbore #1 - Plan #1 (10-8-14)	800.0	800.0	56.0	52.7	16.618	CC, ES
Jacobucci 32S-303 - Wellbore #1 - Plan #1 (10-8-14)	14,713.5	14,599.9	753.8	485.0	2.805	SF
Jacobucci 32S-343 - Wellbore #1 - Plan #2 (10-8-14)	800.0	800.0	142.9	139.5	42.376	CC, ES
Jacobucci 32S-343 - Wellbore #1 - Plan #2 (10-8-14)	14,713.5	14,577.5	1,762.6	1,493.7	6.556	SF
Jacobucci 32S-403 - Wellbore #1 - Plan #1 (10-8-14)	800.0	800.0	28.0	24.6	8.309	CC, ES
Jacobucci 32S-403 - Wellbore #1 - Plan #1 (10-8-14)	14,713.5	14,755.9	430.7	174.8	1.683	SF

Offset Design Existings Sec.32-T1N-R67W - Degenhart 1 PDC (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 8427-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	30.0	30.0	0.0	0.6	152.22	-3,134.6	1,651.3	3,543.0	3,542.4	0.60	5,903.023	
100.0	100.0	130.0	130.0	0.1	2.6	152.22	-3,134.6	1,651.3	3,543.0	3,540.3	2.71	1,306.133	
200.0	200.0	230.0	230.0	0.3	4.6	152.22	-3,134.6	1,651.3	3,543.0	3,538.1	4.94	717.590	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 1 PDC (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 8427-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
300.0	300.0	330.0	330.0	0.6	6.6	152.22	-3,134.6	1,651.3	3,543.0	3,535.8	7.16	494.685	
400.0	400.0	430.0	430.0	0.8	8.6	152.22	-3,134.6	1,651.3	3,543.0	3,533.6	9.39	377.441	
500.0	500.0	530.0	530.0	1.0	10.6	152.22	-3,134.6	1,651.3	3,543.0	3,531.4	11.61	305.124	
600.0	600.0	630.0	630.0	1.2	12.6	152.22	-3,134.6	1,651.3	3,543.0	3,529.2	13.84	256.063	
700.0	700.0	730.0	730.0	1.5	14.6	152.22	-3,134.6	1,651.3	3,543.0	3,526.9	16.06	220.594	
800.0	800.0	830.0	830.0	1.7	16.6	152.22	-3,134.6	1,651.3	3,543.0	3,524.7	18.29	193.755	
900.0	900.0	930.0	930.0	1.9	18.6	72.66	-3,134.6	1,651.3	3,542.5	3,522.0	20.50	172.814	
1,000.0	999.8	1,029.8	1,029.8	2.1	20.6	72.77	-3,134.6	1,651.3	3,540.9	3,518.2	22.70	155.970	
1,100.0	1,099.5	1,129.5	1,129.5	2.3	22.6	72.95	-3,134.6	1,651.3	3,538.3	3,513.4	24.91	142.034	
1,200.0	1,198.7	1,228.7	1,228.7	2.6	24.6	73.21	-3,134.6	1,651.3	3,534.8	3,507.6	27.13	130.280	
1,300.0	1,297.5	1,327.5	1,327.5	2.9	26.5	73.53	-3,134.6	1,651.3	3,530.2	3,500.9	29.37	120.198	
1,400.0	1,395.6	1,425.6	1,425.6	3.2	28.5	73.93	-3,134.6	1,651.3	3,524.8	3,493.2	31.63	111.425	
1,500.0	1,493.1	1,523.1	1,523.1	3.6	30.5	74.40	-3,134.6	1,651.3	3,518.5	3,484.6	33.93	103.697	
1,600.0	1,589.8	1,619.8	1,619.8	4.0	32.4	74.84	-3,134.6	1,651.3	3,511.6	3,475.3	36.28	96.802	
1,700.0	1,686.4	1,716.4	1,716.4	4.5	34.3	75.23	-3,134.6	1,651.3	3,504.7	3,466.1	38.66	90.664	
1,800.0	1,783.1	1,813.1	1,813.1	4.9	36.3	75.63	-3,134.6	1,651.3	3,498.1	3,457.0	41.06	85.203	
1,900.0	1,879.7	1,909.7	1,909.7	5.4	38.2	76.02	-3,134.6	1,651.3	3,491.6	3,448.1	43.47	80.321	
2,000.0	1,976.4	2,006.4	2,006.4	5.9	40.1	76.42	-3,134.6	1,651.3	3,485.2	3,439.3	45.90	75.937	
2,100.0	2,073.0	2,103.0	2,103.0	6.4	42.1	76.82	-3,134.6	1,651.3	3,479.1	3,430.8	48.33	71.984	
2,200.0	2,169.6	2,199.6	2,199.6	7.0	44.0	77.22	-3,134.6	1,651.3	3,473.1	3,422.4	50.77	68.403	
2,300.0	2,266.3	2,296.3	2,296.3	7.5	45.9	77.62	-3,134.6	1,651.3	3,467.4	3,414.1	53.22	65.147	
2,400.0	2,362.9	2,392.9	2,392.9	8.0	47.9	78.02	-3,134.6	1,651.3	3,461.8	3,406.1	55.68	62.175	
2,500.0	2,459.6	2,489.6	2,489.6	8.5	49.8	78.42	-3,134.6	1,651.3	3,456.3	3,398.2	58.14	59.452	
2,600.0	2,556.2	2,586.2	2,586.2	9.1	51.7	78.83	-3,134.6	1,651.3	3,451.1	3,390.5	60.60	56.950	
2,700.0	2,652.9	2,682.9	2,682.9	9.6	53.7	79.23	-3,134.6	1,651.3	3,446.1	3,383.0	63.06	54.643	
2,800.0	2,749.5	2,779.5	2,779.5	10.1	55.6	79.64	-3,134.6	1,651.3	3,441.2	3,375.7	65.53	52.510	
2,900.0	2,846.2	2,876.2	2,876.2	10.7	57.5	80.05	-3,134.6	1,651.3	3,436.5	3,368.5	68.00	50.533	
3,000.0	2,942.8	2,972.8	2,972.8	11.2	59.5	80.46	-3,134.6	1,651.3	3,432.0	3,361.5	70.48	48.696	
3,100.0	3,039.4	3,069.4	3,069.4	11.7	61.4	80.87	-3,134.6	1,651.3	3,427.7	3,354.7	72.95	46.984	
3,200.0	3,136.1	3,166.1	3,166.1	12.3	63.3	81.28	-3,134.6	1,651.3	3,423.6	3,348.1	75.43	45.387	
3,300.0	3,232.7	3,262.7	3,262.7	12.8	65.3	81.69	-3,134.6	1,651.3	3,419.6	3,341.7	77.91	43.892	
3,400.0	3,329.4	3,359.4	3,359.4	13.4	67.2	82.10	-3,134.6	1,651.3	3,415.9	3,335.5	80.39	42.491	
3,500.0	3,426.0	3,456.0	3,456.0	13.9	69.1	82.51	-3,134.6	1,651.3	3,412.3	3,329.5	82.87	41.176	
3,600.0	3,522.7	3,552.7	3,552.7	14.4	71.1	82.93	-3,134.6	1,651.3	3,409.0	3,323.6	85.36	39.939	
3,700.0	3,619.3	3,649.3	3,649.3	15.0	73.0	83.34	-3,134.6	1,651.3	3,405.8	3,318.0	87.84	38.773	
3,800.0	3,715.9	3,745.9	3,745.9	15.5	74.9	83.76	-3,134.6	1,651.3	3,402.8	3,312.5	90.32	37.674	
3,900.0	3,812.6	3,842.6	3,842.6	16.1	76.9	84.17	-3,134.6	1,651.3	3,400.0	3,307.2	92.81	36.635	
4,000.0	3,909.2	3,939.2	3,939.2	16.6	78.8	84.59	-3,134.6	1,651.3	3,397.4	3,302.1	95.29	35.652	
4,100.0	4,005.9	4,035.9	4,035.9	17.1	80.7	85.01	-3,134.6	1,651.3	3,395.0	3,297.2	97.78	34.721	
4,200.0	4,102.5	4,132.5	4,132.5	17.7	82.7	85.43	-3,134.6	1,651.3	3,392.8	3,292.5	100.27	33.838	
4,300.0	4,199.2	4,229.2	4,229.2	18.2	84.6	85.84	-3,134.6	1,651.3	3,390.8	3,288.0	102.75	33.000	
4,400.0	4,295.8	4,325.8	4,325.8	18.8	86.5	86.26	-3,134.6	1,651.3	3,388.9	3,283.7	105.24	32.203	
4,500.0	4,392.5	4,422.5	4,422.5	19.3	88.4	86.68	-3,134.6	1,651.3	3,387.3	3,279.6	107.72	31.444	
4,600.0	4,489.1	4,519.1	4,519.1	19.9	90.4	87.10	-3,134.6	1,651.3	3,385.9	3,275.7	110.21	30.722	
4,700.0	4,585.7	4,615.7	4,615.7	20.4	92.3	87.52	-3,134.6	1,651.3	3,384.6	3,271.9	112.70	30.033	
4,800.0	4,682.4	4,712.4	4,712.4	21.0	94.2	87.94	-3,134.6	1,651.3	3,383.6	3,268.4	115.18	29.376	
4,900.0	4,779.0	4,809.0	4,809.0	21.5	96.2	88.36	-3,134.6	1,651.3	3,382.7	3,265.0	117.67	28.748	
5,000.0	4,875.7	4,905.7	4,905.7	22.1	98.1	88.78	-3,134.6	1,651.3	3,382.0	3,261.9	120.15	28.148	
5,100.0	4,972.3	5,002.3	5,002.3	22.6	100.0	89.20	-3,134.6	1,651.3	3,381.6	3,258.9	122.63	27.574	
5,200.0	5,069.0	5,099.0	5,099.0	23.1	102.0	89.62	-3,134.6	1,651.3	3,381.3	3,256.2	125.12	27.025	
5,289.6	5,155.6	5,185.6	5,185.6	23.6	103.7	90.00	-3,134.6	1,651.3	3,381.2	3,253.9	127.34	26.552	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 1 PDC (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 8427-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,300.0	5,165.6	5,195.6	5,195.6	23.7	103.9	90.04	-3,134.6	1,651.3	3,381.2	3,253.6	127.60	26.499	
5,400.0	5,262.2	5,292.2	5,292.2	24.2	105.8	90.46	-3,134.6	1,651.3	3,381.3	3,251.3	130.08	25.994	
5,500.0	5,358.9	5,388.9	5,388.9	24.8	107.8	90.88	-3,134.6	1,651.3	3,381.7	3,249.1	132.56	25.510	
5,600.0	5,455.5	5,485.5	5,485.5	25.3	109.7	91.31	-3,134.6	1,651.3	3,382.2	3,247.1	135.04	25.046	
5,700.0	5,552.2	5,582.2	5,582.2	25.9	111.6	91.73	-3,134.6	1,651.3	3,382.9	3,245.4	137.52	24.600	
5,800.0	5,648.8	5,678.8	5,678.8	26.4	113.6	92.15	-3,134.6	1,651.3	3,383.8	3,243.8	139.99	24.171	
5,900.0	5,745.5	5,775.5	5,775.5	27.0	115.5	92.57	-3,134.6	1,651.3	3,384.9	3,242.4	142.47	23.759	
6,000.0	5,842.1	5,872.1	5,872.1	27.5	117.4	92.99	-3,134.6	1,651.3	3,386.1	3,241.2	144.94	23.362	
6,100.0	5,938.7	5,968.7	5,968.7	28.1	119.4	93.41	-3,134.6	1,651.3	3,387.6	3,240.2	147.41	22.981	
6,200.0	6,035.4	6,065.4	6,065.4	28.6	121.3	93.82	-3,134.6	1,651.3	3,389.3	3,239.4	149.88	22.613	
6,300.0	6,132.3	6,162.3	6,162.3	29.1	123.2	94.26	-3,134.6	1,651.3	3,391.1	3,238.8	152.30	22.266	
6,400.0	6,229.9	6,259.9	6,259.9	29.5	125.2	94.65	-3,134.6	1,651.3	3,392.8	3,238.2	154.61	21.944	
6,500.0	6,328.2	6,358.2	6,358.2	29.8	127.2	94.98	-3,134.6	1,651.3	3,394.4	3,237.5	156.90	21.635	
6,600.0	6,427.1	6,457.1	6,457.1	30.1	129.1	95.25	-3,134.6	1,651.3	3,395.7	3,236.6	159.14	21.337	
6,700.0	6,526.5	6,556.5	6,556.5	30.3	131.1	95.46	-3,134.6	1,651.3	3,396.8	3,235.4	161.36	21.051	
6,800.0	6,626.2	6,656.2	6,656.2	30.5	133.1	95.60	-3,134.6	1,651.3	3,397.5	3,234.0	163.53	20.776	
6,900.0	6,726.1	6,756.1	6,756.1	30.6	135.1	95.68	-3,134.6	1,651.3	3,397.9	3,232.3	165.67	20.511	
7,000.0	6,826.1	6,856.1	6,856.1	30.7	137.1	175.30	-3,134.6	1,651.3	3,398.0	3,230.3	167.77	20.254	
7,100.0	6,926.1	6,956.1	6,956.1	30.8	139.1	175.30	-3,134.6	1,651.3	3,398.0	3,228.2	169.88	20.003	
7,200.0	7,025.8	7,055.8	7,055.8	30.9	141.1	-4.74	-3,134.6	1,651.3	3,392.0	3,221.4	170.60	19.884	
7,300.0	7,123.9	7,153.9	7,153.9	31.0	143.1	-4.89	-3,134.6	1,651.3	3,373.1	3,204.8	168.35	20.036	
7,400.0	7,218.7	7,248.7	7,248.7	31.0	145.0	-5.16	-3,134.6	1,651.3	3,341.6	3,178.5	163.11	20.486	
7,500.0	7,308.6	7,338.6	7,338.6	31.0	146.8	-5.57	-3,134.6	1,651.3	3,298.1	3,143.1	154.93	21.288	
7,600.0	7,391.9	7,421.9	7,421.9	31.0	148.4	-6.17	-3,134.6	1,651.3	3,243.2	3,099.2	143.94	22.532	
7,700.0	7,467.4	7,497.4	7,497.4	31.0	149.9	-7.05	-3,134.6	1,651.3	3,177.9	3,047.5	130.44	24.363	
7,800.0	7,533.7	7,563.7	7,563.7	31.0	151.3	-8.36	-3,134.6	1,651.3	3,103.5	2,988.5	114.98	26.990	
7,900.0	7,589.7	7,619.7	7,619.7	31.1	152.4	-10.39	-3,134.6	1,651.3	3,021.0	2,922.3	98.70	30.607	
8,000.0	7,634.3	7,664.3	7,664.3	31.3	153.3	-13.82	-3,134.6	1,651.3	2,932.0	2,847.5	84.52	34.689	
8,100.0	7,667.0	7,697.0	7,697.0	31.5	153.9	-20.47	-3,134.6	1,651.3	2,838.0	2,756.7	81.31	34.902	
8,200.0	7,687.0	7,717.0	7,717.0	31.8	154.3	-36.93	-3,134.6	1,651.3	2,740.6	2,628.6	112.00	24.470	
8,300.0	7,694.0	7,724.0	7,724.0	32.2	154.5	-87.13	-3,134.6	1,651.3	2,641.4	2,465.3	176.17	14.994	
8,400.0	7,694.2	7,724.2	7,724.2	32.8	154.5	-89.27	-3,134.6	1,651.3	2,542.0	2,364.8	177.17	14.348	
8,500.0	7,694.3	7,724.3	7,724.3	33.4	154.5	-89.30	-3,134.6	1,651.3	2,442.6	2,264.4	178.26	13.702	
8,600.0	7,694.5	7,724.5	7,724.5	34.2	154.5	-89.33	-3,134.6	1,651.3	2,343.3	2,163.9	179.45	13.058	
8,700.0	7,694.6	7,724.6	7,724.6	35.0	154.5	-89.36	-3,134.6	1,651.3	2,244.1	2,063.3	180.73	12.417	
8,800.0	7,694.7	7,724.7	7,724.7	35.9	154.5	-89.39	-3,134.6	1,651.3	2,144.9	1,962.8	182.08	11.780	
8,900.0	7,694.9	7,724.9	7,724.9	37.0	154.5	-89.42	-3,134.6	1,651.3	2,045.8	1,862.3	183.49	11.149	
9,000.0	7,695.0	7,725.0	7,725.0	38.1	154.5	-89.45	-3,134.6	1,651.3	1,946.7	1,761.8	184.96	10.525	
9,100.0	7,695.2	7,725.2	7,725.2	39.2	154.5	-89.47	-3,134.6	1,651.3	1,847.8	1,661.3	186.48	9.909	
9,200.0	7,695.3	7,725.3	7,725.3	40.5	154.5	-89.50	-3,134.6	1,651.3	1,749.0	1,561.0	188.04	9.301	
9,300.0	7,695.4	7,725.4	7,725.4	41.8	154.5	-89.53	-3,134.6	1,651.3	1,650.4	1,460.7	189.63	8.703	
9,400.0	7,695.6	7,725.6	7,725.6	43.1	154.5	-89.56	-3,134.6	1,651.3	1,551.9	1,360.6	191.25	8.114	
9,500.0	7,695.7	7,725.7	7,725.7	44.5	154.5	-89.59	-3,134.6	1,651.3	1,453.6	1,260.7	192.90	7.535	
9,600.0	7,695.9	7,725.9	7,725.9	45.9	154.5	-89.62	-3,134.6	1,651.3	1,355.6	1,161.0	194.58	6.967	
9,700.0	7,696.0	7,726.0	7,726.0	47.4	154.5	-89.65	-3,134.6	1,651.3	1,257.9	1,061.6	196.27	6.409	
9,800.0	7,696.1	7,726.1	7,726.1	48.9	154.5	-89.68	-3,134.6	1,651.3	1,160.6	962.6	197.99	5.862	
9,900.0	7,696.3	7,726.3	7,726.3	50.4	154.5	-89.70	-3,134.6	1,651.3	1,063.8	864.1	199.72	5.326	
10,000.0	7,696.4	7,726.4	7,726.4	52.0	154.5	-89.73	-3,134.6	1,651.3	967.6	766.2	201.46	4.803	
10,100.0	7,696.6	7,726.6	7,726.6	53.6	154.5	-89.76	-3,134.6	1,651.3	872.3	669.1	203.22	4.293	
10,200.0	7,696.7	7,726.7	7,726.7	55.2	154.5	-89.79	-3,134.6	1,651.3	778.2	573.2	204.99	3.796	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 1 PDC (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 8427-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,300.0	7,696.8	7,726.8	7,726.8	56.8	154.5	-89.82	-3,134.6	1,651.3	685.7	479.0	206.76	3.317	
10,400.0	7,697.0	7,727.0	7,727.0	58.4	154.5	-89.85	-3,134.6	1,651.3	595.7	387.2	208.55	2.856	
10,500.0	7,697.1	7,727.1	7,727.1	60.1	154.5	-89.88	-3,134.6	1,651.3	509.5	299.1	210.35	2.422	
10,600.0	7,697.3	7,727.3	7,727.3	61.8	154.5	-89.91	-3,134.6	1,651.3	429.2	217.0	212.15	2.023	
10,700.0	7,697.4	7,727.4	7,727.4	63.5	154.5	-89.93	-3,134.6	1,651.3	359.0	145.0	213.97	1.678	
10,800.0	7,697.5	7,727.5	7,727.5	65.2	154.6	-89.96	-3,134.6	1,651.3	305.8	90.0	215.78	1.417	Level 3
10,900.0	7,697.7	7,727.7	7,727.7	66.9	154.6	-89.99	-3,134.6	1,651.3	279.6	62.0	217.61	1.285	Level 3
10,926.7	7,697.7	7,727.7	7,727.7	67.3	154.6	-90.00	-3,134.6	1,651.3	278.3	60.2	218.10	1.276	Level 3, CC, ES, SF
11,000.0	7,697.8	7,727.8	7,727.8	68.6	154.6	-90.02	-3,134.6	1,651.3	287.8	68.3	219.43	1.311	Level 3
11,100.0	7,698.0	7,728.0	7,728.0	70.3	154.6	-90.05	-3,134.6	1,651.3	327.8	106.5	221.27	1.482	Level 3
11,200.0	7,698.1	7,728.1	7,728.1	72.1	154.6	-90.08	-3,134.6	1,651.3	390.0	166.9	223.11	1.748	
11,300.0	7,698.2	7,728.2	7,728.2	73.8	154.6	-90.11	-3,134.6	1,651.3	465.6	240.6	224.95	2.070	
11,400.0	7,698.4	7,728.4	7,728.4	75.6	154.6	-90.14	-3,134.6	1,651.3	549.0	322.2	226.79	2.421	
11,500.0	7,698.5	7,728.5	7,728.5	77.4	154.6	-90.16	-3,134.6	1,651.3	637.2	408.6	228.64	2.787	
11,600.0	7,698.7	7,728.7	7,728.7	79.1	154.6	-90.19	-3,134.6	1,651.3	728.5	498.0	230.50	3.161	
11,700.0	7,698.8	7,728.8	7,728.8	80.9	154.6	-90.22	-3,134.6	1,651.3	821.8	589.5	232.35	3.537	
11,800.0	7,698.9	7,728.9	7,728.9	82.7	154.6	-90.25	-3,134.6	1,651.3	916.5	682.3	234.21	3.913	
11,900.0	7,699.1	7,729.1	7,729.1	84.5	154.6	-90.28	-3,134.6	1,651.3	1,012.3	776.2	236.07	4.288	
12,000.0	7,699.2	7,729.2	7,729.2	86.3	154.6	-90.31	-3,134.6	1,651.3	1,108.8	870.8	237.93	4.660	
12,100.0	7,699.4	7,729.4	7,729.4	88.1	154.6	-90.34	-3,134.6	1,651.3	1,205.8	966.0	239.80	5.028	
12,200.0	7,699.5	7,729.5	7,729.5	89.9	154.6	-90.37	-3,134.6	1,651.3	1,303.3	1,061.6	241.67	5.393	
12,300.0	7,699.6	7,729.6	7,729.6	91.7	154.6	-90.39	-3,134.6	1,651.3	1,401.2	1,157.6	243.54	5.753	
12,400.0	7,699.8	7,729.8	7,729.8	93.6	154.6	-90.42	-3,134.6	1,651.3	1,499.3	1,253.9	245.41	6.109	
12,500.0	7,699.9	7,729.9	7,729.9	95.4	154.6	-90.45	-3,134.6	1,651.3	1,597.7	1,350.4	247.28	6.461	
12,600.0	7,700.0	7,730.0	7,730.0	97.2	154.6	-90.48	-3,134.6	1,651.3	1,696.2	1,447.1	249.16	6.808	
12,700.0	7,700.2	7,730.2	7,730.2	99.0	154.6	-90.51	-3,134.6	1,651.3	1,795.0	1,543.9	251.03	7.150	
12,800.0	7,700.3	7,730.3	7,730.3	100.9	154.6	-90.54	-3,134.6	1,651.3	1,893.8	1,640.9	252.91	7.488	
12,900.0	7,700.5	7,730.5	7,730.5	102.7	154.6	-90.57	-3,134.6	1,651.3	1,992.8	1,738.0	254.79	7.821	
13,000.0	7,700.6	7,730.6	7,730.6	104.5	154.6	-90.60	-3,134.6	1,651.3	2,091.9	1,835.2	256.67	8.150	
13,100.0	7,700.7	7,730.7	7,730.7	106.4	154.6	-90.62	-3,134.6	1,651.3	2,191.0	1,932.5	258.55	8.474	
13,200.0	7,700.9	7,730.9	7,730.9	108.2	154.6	-90.65	-3,134.6	1,651.3	2,290.2	2,029.8	260.43	8.794	
13,300.0	7,701.0	7,731.0	7,731.0	110.1	154.6	-90.68	-3,134.6	1,651.3	2,389.5	2,127.2	262.32	9.109	
13,400.0	7,701.2	7,731.2	7,731.2	111.9	154.6	-90.71	-3,134.6	1,651.3	2,488.9	2,224.7	264.20	9.420	
13,500.0	7,701.3	7,731.3	7,731.3	113.8	154.6	-90.74	-3,134.6	1,651.3	2,588.3	2,322.2	266.09	9.727	
13,600.0	7,701.4	7,731.4	7,731.4	115.6	154.6	-90.77	-3,134.6	1,651.3	2,687.7	2,419.7	267.97	10.030	
13,700.0	7,701.6	7,731.6	7,731.6	117.5	154.6	-90.80	-3,134.6	1,651.3	2,787.2	2,517.3	269.86	10.328	
13,800.0	7,701.7	7,731.7	7,731.7	119.3	154.6	-90.83	-3,134.6	1,651.3	2,886.7	2,615.0	271.75	10.623	
13,900.0	7,701.9	7,731.9	7,731.9	121.2	154.6	-90.85	-3,134.6	1,651.3	2,986.3	2,712.6	273.64	10.913	
14,000.0	7,702.0	7,732.0	7,732.0	123.0	154.6	-90.88	-3,134.6	1,651.3	3,085.8	2,810.3	275.53	11.200	
14,100.0	7,702.1	7,732.1	7,732.1	124.9	154.6	-90.91	-3,134.6	1,651.3	3,185.4	2,908.0	277.42	11.482	
14,200.0	7,702.3	7,732.3	7,732.3	126.8	154.6	-90.94	-3,134.6	1,651.3	3,285.1	3,005.8	279.31	11.761	
14,300.0	7,702.4	7,732.4	7,732.4	128.6	154.6	-90.97	-3,134.6	1,651.3	3,384.7	3,103.5	281.20	12.037	
14,400.0	7,702.6	7,732.6	7,732.6	130.5	154.7	-91.00	-3,134.6	1,651.3	3,484.4	3,201.3	283.09	12.308	
14,500.0	7,702.7	7,732.7	7,732.7	132.3	154.7	-91.03	-3,134.6	1,651.3	3,584.1	3,299.1	284.99	12.576	
14,600.0	7,702.8	7,732.8	7,732.8	134.2	154.7	-91.06	-3,134.6	1,651.3	3,683.8	3,396.9	286.88	12.841	
14,700.0	7,703.0	7,733.0	7,733.0	136.1	154.7	-91.08	-3,134.6	1,651.3	3,783.5	3,494.7	288.77	13.102	
14,713.5	7,703.0	7,733.0	7,733.0	136.3	154.7	-91.09	-3,134.6	1,651.3	3,797.0	3,508.0	289.03	13.137	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 43-5 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	42.0	42.0	0.0	0.1	160.77	-4,819.5	1,681.1	5,104.3	5,104.3	0.06	N/A	
100.0	100.0	129.9	129.9	0.1	0.2	160.77	-4,819.9	1,681.1	5,104.7	5,104.4	0.32	N/A	
200.0	200.0	237.6	237.6	0.3	0.5	160.78	-4,820.4	1,680.9	5,105.1	5,104.2	0.83	6,136.985	
300.0	300.0	336.3	336.3	0.6	0.7	160.78	-4,820.8	1,680.5	5,105.4	5,104.1	1.31	3,904.153	
400.0	400.0	441.2	441.1	0.8	1.0	160.80	-4,821.7	1,679.2	5,105.7	5,103.9	1.79	2,848.441	
500.0	500.0	565.3	565.2	1.0	1.3	160.84	-4,822.8	1,675.9	5,105.7	5,103.4	2.32	2,202.730	
600.0	600.0	681.9	681.7	1.2	1.6	160.88	-4,823.6	1,672.1	5,105.3	5,102.5	2.82	1,807.543	
700.0	700.0	771.9	771.7	1.5	1.8	160.92	-4,824.2	1,669.0	5,104.8	5,101.5	3.27	1,560.032	
800.0	800.0	862.8	862.6	1.7	2.0	160.95	-4,825.0	1,666.0	5,104.5	5,100.8	3.73	1,369.120	
900.0	900.0	959.5	959.2	1.9	2.3	81.42	-4,826.0	1,662.7	5,104.1	5,099.9	4.20	1,216.056	
1,000.0	999.8	1,073.2	1,072.8	2.1	2.6	81.55	-4,827.2	1,658.5	5,103.1	5,098.4	4.70	1,084.668	
1,100.0	1,099.5	1,222.0	1,221.4	2.3	3.0	81.81	-4,828.1	1,652.0	5,101.0	5,095.7	5.31	960.294	
1,200.0	1,198.7	1,340.5	1,339.9	2.6	3.3	82.10	-4,828.0	1,646.2	5,097.7	5,091.8	5.86	870.142	
1,300.0	1,297.5	1,434.8	1,434.0	2.9	3.5	82.38	-4,827.8	1,641.7	5,093.8	5,087.4	6.38	798.828	
1,400.0	1,395.6	1,523.3	1,522.4	3.2	3.7	82.70	-4,827.7	1,637.7	5,089.7	5,082.8	6.92	735.052	
1,500.0	1,493.1	1,618.4	1,617.4	3.6	4.0	83.06	-4,827.5	1,633.8	5,085.4	5,077.9	7.54	674.314	
1,600.0	1,589.8	1,718.4	1,717.4	4.0	4.2	83.42	-4,827.2	1,629.9	5,080.8	5,072.6	8.23	617.670	
1,700.0	1,686.4	1,815.4	1,814.3	4.5	4.5	83.74	-4,826.9	1,626.3	5,076.4	5,067.4	8.93	568.408	
1,800.0	1,783.1	1,913.6	1,912.5	4.9	4.7	84.06	-4,826.4	1,622.7	5,072.0	5,062.3	9.66	525.200	
1,900.0	1,879.7	2,008.4	2,007.2	5.4	5.0	84.37	-4,825.9	1,619.5	5,067.8	5,057.4	10.39	487.826	
2,000.0	1,976.4	2,100.0	2,098.7	5.9	5.2	84.66	-4,825.5	1,616.6	5,063.8	5,052.7	11.12	455.272	
2,100.0	2,073.0	2,176.3	2,175.0	6.4	5.4	84.90	-4,825.2	1,614.4	5,060.2	5,048.4	11.83	427.838	
2,200.0	2,169.6	2,256.6	2,255.3	7.0	5.6	85.16	-4,825.0	1,612.5	5,057.1	5,044.5	12.55	402.925	
2,300.0	2,266.3	2,345.8	2,344.4	7.5	5.8	85.43	-4,825.1	1,610.7	5,054.3	5,041.0	13.30	379.899	
2,400.0	2,362.9	2,441.2	2,439.9	8.0	6.1	85.73	-4,825.1	1,608.8	5,051.8	5,037.7	14.08	358.789	
2,500.0	2,459.6	2,534.7	2,533.3	8.5	6.3	86.02	-4,825.2	1,606.7	5,049.4	5,034.6	14.85	339.921	
2,600.0	2,556.2	2,632.0	2,630.5	9.1	6.6	86.33	-4,825.4	1,604.4	5,047.2	5,031.6	15.64	322.647	
2,700.0	2,652.9	2,723.7	2,722.3	9.6	6.8	86.62	-4,825.6	1,602.2	5,045.2	5,028.8	16.42	307.267	
2,800.0	2,749.5	2,808.9	2,807.4	10.1	7.1	86.90	-4,825.9	1,600.1	5,043.5	5,026.3	17.18	293.557	
2,900.0	2,846.2	2,903.5	2,902.0	10.7	7.3	87.19	-4,826.3	1,598.0	5,042.0	5,024.0	17.97	280.601	
3,000.0	2,942.8	3,021.6	3,020.1	11.2	7.6	87.56	-4,826.6	1,595.9	5,040.6	5,021.8	18.82	267.899	
3,100.0	3,039.4	3,194.3	3,192.8	11.7	8.0	88.09	-4,824.9	1,593.4	5,038.2	5,018.5	19.74	255.215	
3,200.0	3,136.1	3,310.6	3,309.0	12.3	8.3	88.44	-4,822.7	1,591.5	5,035.1	5,014.6	20.52	245.408	
3,300.0	3,232.7	3,410.9	3,409.3	12.8	8.5	88.76	-4,820.6	1,589.4	5,032.0	5,010.7	21.28	236.516	
3,400.0	3,329.4	3,490.2	3,488.5	13.4	8.7	89.01	-4,819.2	1,587.4	5,029.1	5,007.1	22.00	228.595	
3,500.0	3,426.0	3,575.6	3,573.9	13.9	8.9	89.28	-4,817.9	1,585.2	5,026.6	5,003.9	22.75	220.957	
3,600.0	3,522.7	3,659.8	3,658.0	14.4	9.1	89.54	-4,816.8	1,583.0	5,024.5	5,001.0	23.50	213.803	
3,700.0	3,619.3	3,744.1	3,742.3	15.0	9.3	89.81	-4,815.9	1,581.0	5,022.8	4,998.6	24.26	207.069	
3,800.0	3,715.9	3,828.6	3,826.8	15.5	9.5	90.08	-4,815.2	1,578.9	5,021.5	4,996.4	25.02	200.720	
3,900.0	3,812.6	3,911.6	3,909.8	16.1	9.7	90.35	-4,814.7	1,576.8	5,020.5	4,994.7	25.78	194.759	
4,000.0	3,909.2	4,000.0	3,998.2	16.6	10.0	90.63	-4,814.5	1,574.4	5,020.0	4,993.4	26.56	189.034	
4,075.4	3,982.1	4,055.6	4,053.7	17.0	10.1	90.81	-4,814.5	1,572.9	5,019.8	4,992.7	27.11	185.138	
4,100.0	4,005.9	4,075.6	4,073.7	17.1	10.2	90.87	-4,814.5	1,572.3	5,019.8	4,992.5	27.30	183.871	
4,200.0	4,102.5	4,167.7	4,165.8	17.7	10.4	91.17	-4,814.8	1,569.6	5,020.1	4,992.0	28.09	178.713	
4,300.0	4,199.2	4,249.7	4,247.7	18.2	10.6	91.44	-4,815.1	1,567.1	5,020.6	4,991.7	28.85	174.017	
4,400.0	4,295.8	4,320.0	4,318.0	18.8	10.8	91.67	-4,815.6	1,565.1	5,021.6	4,992.1	29.58	169.778	
4,500.0	4,392.5	4,381.5	4,379.5	19.3	10.9	91.87	-4,816.4	1,563.5	5,023.5	4,993.2	30.28	165.928	
4,600.0	4,489.1	4,446.9	4,444.9	19.9	11.1	92.08	-4,817.7	1,562.0	5,026.1	4,995.1	30.97	162.291	
4,700.0	4,585.7	4,519.4	4,517.3	20.4	11.3	92.31	-4,819.6	1,560.6	5,029.4	4,997.7	31.67	158.799	
4,800.0	4,682.4	4,611.8	4,609.7	21.0	11.4	92.60	-4,822.1	1,558.9	5,033.1	5,000.7	32.41	155.303	
4,900.0	4,779.0	4,711.1	4,708.9	21.5	11.7	92.92	-4,824.8	1,557.0	5,036.9	5,003.7	33.16	151.879	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 43-5 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,875.7	4,827.3	4,825.0	22.1	11.9	93.29	-4,827.8	1,554.4	5,040.7	5,006.8	33.97	148.388	
5,100.0	4,972.3	4,971.8	4,969.5	22.6	12.3	93.75	-4,830.5	1,550.6	5,044.0	5,009.1	34.87	144.668	
5,200.0	5,069.0	5,084.5	5,082.2	23.1	12.6	94.12	-4,831.9	1,547.3	5,046.8	5,011.1	35.70	141.368	
5,300.0	5,165.6	5,187.7	5,185.3	23.7	12.8	94.45	-4,833.0	1,544.3	5,049.5	5,013.0	36.51	138.300	
5,400.0	5,262.2	5,269.2	5,266.7	24.2	13.1	94.72	-4,833.8	1,542.0	5,052.4	5,015.2	37.26	135.581	
5,500.0	5,358.9	5,353.4	5,350.9	24.8	13.3	94.99	-4,835.0	1,539.7	5,055.8	5,017.8	38.02	132.969	
5,600.0	5,455.5	5,446.5	5,444.0	25.3	13.5	95.28	-4,836.3	1,537.4	5,059.5	5,020.7	38.80	130.402	
5,700.0	5,552.2	5,540.7	5,538.1	25.9	13.8	95.58	-4,837.7	1,535.3	5,063.3	5,023.8	39.58	127.940	
5,800.0	5,648.8	5,634.9	5,632.3	26.4	14.0	95.88	-4,839.2	1,533.3	5,067.4	5,027.1	40.35	125.586	
5,900.0	5,745.5	5,740.8	5,738.2	27.0	14.3	96.21	-4,840.7	1,531.2	5,071.5	5,030.4	41.15	123.238	
6,000.0	5,842.1	5,846.7	5,844.0	27.5	14.5	96.54	-4,842.0	1,529.0	5,075.6	5,033.7	41.96	120.970	
6,100.0	5,938.7	5,951.9	5,949.2	28.1	14.8	96.86	-4,843.1	1,527.0	5,079.7	5,036.9	42.76	118.783	
6,200.0	6,035.4	6,051.1	6,048.4	28.6	15.1	97.17	-4,844.0	1,525.2	5,083.7	5,040.2	43.56	116.717	
6,300.0	6,132.3	6,145.4	6,142.7	29.1	15.3	97.51	-4,844.8	1,523.4	5,087.8	5,043.6	44.28	114.904	
6,400.0	6,229.9	6,246.3	6,243.6	29.5	15.6	97.85	-4,845.7	1,521.4	5,091.7	5,046.8	44.89	113.415	
6,500.0	6,328.2	6,363.1	6,360.3	29.8	15.9	98.17	-4,846.5	1,519.4	5,094.9	5,049.4	45.51	111.961	
6,600.0	6,427.1	6,468.6	6,465.8	30.1	16.2	98.42	-4,846.9	1,517.3	5,097.3	5,051.3	46.05	110.698	
6,700.0	6,526.5	6,566.0	6,563.2	30.3	16.4	98.60	-4,847.3	1,515.2	5,099.3	5,052.8	46.52	109.604	
6,800.0	6,626.2	6,658.2	6,655.3	30.5	16.7	98.74	-4,847.7	1,513.0	5,100.8	5,053.9	46.95	108.655	
6,900.0	6,726.1	6,747.5	6,744.6	30.6	16.9	98.83	-4,848.2	1,511.0	5,102.1	5,054.8	47.32	107.831	
7,000.0	6,826.1	6,843.1	6,840.2	30.7	17.1	178.47	-4,849.0	1,509.3	5,103.0	5,055.3	47.66	107.063	
7,100.0	6,926.1	6,940.6	6,937.7	30.8	17.4	178.48	-4,849.8	1,508.2	5,103.7	5,055.7	48.02	106.291	
7,200.0	7,025.8	7,032.1	7,029.2	30.9	17.6	-1.52	-4,850.6	1,507.3	5,098.6	5,050.7	47.94	106.363	
7,300.0	7,123.9	7,129.6	7,126.7	31.0	17.8	-1.55	-4,851.6	1,506.4	5,080.6	5,033.5	47.09	107.896	
7,400.0	7,218.7	7,224.6	7,221.7	31.0	18.1	-1.62	-4,852.6	1,505.4	5,049.9	5,004.5	45.49	111.024	
7,500.0	7,308.6	7,312.3	7,309.4	31.0	18.3	-1.72	-4,853.5	1,504.2	5,007.2	4,964.0	43.15	116.037	
7,600.0	7,391.9	7,398.1	7,395.2	31.0	18.5	-1.88	-4,854.4	1,503.5	4,953.0	4,912.8	40.15	123.373	
7,700.0	7,467.4	7,465.6	7,462.6	31.0	18.6	-2.13	-4,855.1	1,503.5	4,888.3	4,851.8	36.51	133.875	
7,800.0	7,533.7	7,531.8	7,528.9	31.0	18.7	-2.50	-4,855.9	1,503.7	4,814.4	4,781.9	32.46	148.327	
7,900.0	7,589.7	7,596.0	7,593.0	31.1	18.8	-3.08	-4,856.7	1,503.9	4,732.3	4,704.1	28.17	167.969	
8,000.0	7,634.3	7,629.5	7,626.5	31.3	18.8	-4.04	-4,857.1	1,504.0	4,643.4	4,619.5	23.95	193.850	
8,100.0	7,667.0	7,653.3	7,650.3	31.5	18.8	-5.90	-4,857.4	1,504.1	4,549.5	4,529.1	20.41	222.860	
8,200.0	7,687.0	7,668.6	7,665.6	31.8	18.9	-10.95	-4,857.6	1,504.2	4,452.0	4,432.7	19.22	231.578	
8,300.0	7,694.0	7,674.8	7,671.8	32.2	18.9	-53.15	-4,857.7	1,504.2	4,352.5	4,316.3	36.13	120.457	
8,400.0	7,694.2	7,676.1	7,673.2	32.8	18.9	-58.63	-4,857.8	1,504.2	4,252.5	4,214.0	38.57	110.243	
8,500.0	7,694.3	7,677.5	7,674.5	33.4	18.9	-59.06	-4,857.8	1,504.2	4,152.6	4,112.9	39.69	104.624	
8,600.0	7,694.5	7,678.8	7,675.9	34.2	18.9	-59.51	-4,857.8	1,504.2	4,052.7	4,011.8	40.89	99.115	
8,700.0	7,694.6	7,680.2	7,677.3	35.0	18.9	-59.96	-4,857.8	1,504.2	3,952.7	3,910.6	42.16	93.758	
8,800.0	7,694.7	7,681.6	7,678.7	35.9	18.9	-60.42	-4,857.9	1,504.2	3,852.8	3,809.3	43.50	88.579	
8,900.0	7,694.9	7,683.1	7,680.1	37.0	18.9	-60.89	-4,857.9	1,504.2	3,752.9	3,708.0	44.89	83.598	
9,000.0	7,695.0	7,684.5	7,681.5	38.1	18.9	-61.38	-4,857.9	1,504.3	3,653.0	3,606.6	46.34	78.825	
9,100.0	7,695.2	7,686.0	7,683.0	39.2	18.9	-61.87	-4,857.9	1,504.3	3,553.1	3,505.2	47.84	74.266	
9,200.0	7,695.3	7,687.4	7,684.5	40.5	18.9	-62.38	-4,858.0	1,504.3	3,453.2	3,403.8	49.39	69.920	
9,300.0	7,695.4	7,700.0	7,697.0	41.8	18.9	-66.86	-4,858.2	1,504.3	3,353.3	3,301.2	52.04	64.441	
9,400.0	7,695.6	7,700.0	7,697.0	43.1	18.9	-66.86	-4,858.2	1,504.3	3,253.4	3,199.8	53.54	60.764	
9,500.0	7,695.7	7,700.0	7,697.0	44.5	18.9	-66.86	-4,858.2	1,504.3	3,153.5	3,098.4	55.07	57.263	
9,600.0	7,695.9	7,700.0	7,697.0	45.9	18.9	-66.86	-4,858.2	1,504.3	3,053.6	2,996.9	56.62	53.930	
9,700.0	7,696.0	7,700.0	7,697.0	47.4	18.9	-66.86	-4,858.2	1,504.3	2,953.7	2,895.5	58.19	50.759	
9,800.0	7,696.1	7,700.0	7,697.0	48.9	18.9	-66.86	-4,858.2	1,504.3	2,853.8	2,794.0	59.78	47.741	
9,900.0	7,696.3	7,700.0	7,697.0	50.4	18.9	-66.86	-4,858.2	1,504.3	2,753.9	2,692.6	61.38	44.868	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 43-5 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,696.4	7,700.0	7,697.0	52.0	18.9	-66.86	-4,858.2	1,504.3	2,654.1	2,591.1	62.99	42.132	
10,100.0	7,696.6	7,700.0	7,697.0	53.6	18.9	-66.86	-4,858.2	1,504.3	2,554.2	2,489.6	64.62	39.526	
10,200.0	7,696.7	7,700.0	7,697.0	55.2	18.9	-66.86	-4,858.2	1,504.3	2,454.4	2,388.1	66.26	37.041	
10,300.0	7,696.8	7,705.8	7,702.8	56.8	18.9	-69.05	-4,858.3	1,504.4	2,354.6	2,285.9	68.62	34.312	
10,400.0	7,697.0	7,707.8	7,704.8	58.4	18.9	-69.79	-4,858.3	1,504.4	2,254.7	2,184.2	70.53	31.968	
10,500.0	7,697.1	7,709.7	7,706.7	60.1	18.9	-70.55	-4,858.4	1,504.4	2,154.9	2,082.5	72.46	29.741	
10,600.0	7,697.3	7,711.7	7,708.7	61.8	18.9	-71.32	-4,858.4	1,504.4	2,055.2	1,980.8	74.40	27.623	
10,700.0	7,697.4	7,713.7	7,710.7	63.5	18.9	-72.10	-4,858.5	1,504.4	1,955.4	1,879.0	76.35	25.610	
10,800.0	7,697.5	7,715.7	7,712.7	65.2	18.9	-72.89	-4,858.5	1,504.4	1,855.7	1,777.3	78.32	23.693	
10,900.0	7,697.7	7,717.7	7,714.7	66.9	18.9	-73.70	-4,858.5	1,504.4	1,755.9	1,675.7	80.30	21.869	
11,000.0	7,697.8	7,719.7	7,716.7	68.6	18.9	-74.52	-4,858.6	1,504.5	1,656.3	1,574.0	82.28	20.130	
11,100.0	7,698.0	7,721.8	7,718.8	70.3	18.9	-75.35	-4,858.6	1,504.5	1,556.6	1,472.4	84.27	18.472	
11,200.0	7,698.1	7,723.8	7,720.8	72.1	18.9	-76.20	-4,858.7	1,504.5	1,457.0	1,370.8	86.26	16.890	
11,300.0	7,698.2	7,725.9	7,722.9	73.8	18.9	-77.06	-4,858.7	1,504.5	1,357.5	1,269.2	88.26	15.380	
11,400.0	7,698.4	7,728.0	7,725.0	75.6	18.9	-77.93	-4,858.8	1,504.5	1,258.0	1,167.8	90.26	13.938	
11,500.0	7,698.5	7,730.1	7,727.1	77.4	18.9	-78.81	-4,858.8	1,504.5	1,158.7	1,066.4	92.26	12.559	
11,600.0	7,698.7	7,732.2	7,729.3	79.1	18.9	-79.71	-4,858.8	1,504.5	1,059.4	965.1	94.25	11.240	
11,700.0	7,698.8	7,734.4	7,731.4	80.9	18.9	-80.62	-4,858.9	1,504.5	960.3	864.0	96.24	9.977	
11,800.0	7,698.9	7,736.6	7,733.6	82.7	18.9	-81.54	-4,858.9	1,504.5	861.3	763.1	98.23	8.769	
11,900.0	7,699.1	7,738.7	7,735.7	84.5	18.9	-82.47	-4,859.0	1,504.5	762.7	662.5	100.20	7.612	
12,000.0	7,699.2	7,740.9	7,737.9	86.3	19.0	-83.42	-4,859.0	1,504.6	664.4	562.3	102.16	6.504	
12,100.0	7,699.4	7,743.2	7,740.2	88.1	19.0	-84.37	-4,859.1	1,504.6	566.8	462.7	104.11	5.444	
12,200.0	7,699.5	7,745.4	7,742.4	89.9	19.0	-85.34	-4,859.1	1,504.6	470.1	364.1	106.04	4.433	
12,300.0	7,699.6	7,747.6	7,744.6	91.7	19.0	-86.31	-4,859.2	1,504.6	375.2	267.2	107.95	3.475	
12,400.0	7,699.8	7,749.9	7,746.9	93.6	19.0	-87.30	-4,859.2	1,504.6	283.7	173.9	109.85	2.583	
12,500.0	7,699.9	7,752.2	7,749.2	95.4	19.0	-88.30	-4,859.3	1,504.6	200.6	88.9	111.72	1.795	
12,600.0	7,700.0	7,754.5	7,751.5	97.2	19.0	-89.30	-4,859.3	1,504.6	141.3	27.7	113.56	1.244	Level 2
12,651.5	7,700.1	7,755.7	7,752.7	98.1	19.0	-89.82	-4,859.3	1,504.6	131.6	17.1	114.50	1.149	Level 2, CC, ES, SF
12,700.0	7,700.2	7,756.8	7,753.8	99.0	19.0	-90.32	-4,859.4	1,504.6	140.2	24.8	115.38	1.215	Level 2
12,800.0	7,700.3	7,759.2	7,756.2	100.9	19.0	-91.34	-4,859.4	1,504.6	198.4	81.2	117.16	1.693	
12,900.0	7,700.5	7,761.6	7,758.6	102.7	19.0	-92.37	-4,859.5	1,504.6	281.2	162.2	118.92	2.364	
13,000.0	7,700.6	7,763.9	7,761.0	104.5	19.0	-93.41	-4,859.5	1,504.6	372.5	251.8	120.64	3.087	
13,100.0	7,700.7	7,766.4	7,763.4	106.4	19.0	-94.45	-4,859.6	1,504.6	467.3	345.0	122.32	3.820	
13,200.0	7,700.9	7,768.8	7,765.8	108.2	19.0	-95.50	-4,859.6	1,504.6	564.0	440.0	123.97	4.549	
13,300.0	7,701.0	7,771.2	7,768.2	110.1	19.0	-96.55	-4,859.7	1,504.6	661.6	536.0	125.57	5.269	
13,400.0	7,701.2	7,773.7	7,770.7	111.9	19.0	-97.61	-4,859.7	1,504.7	759.8	632.7	127.13	5.977	
13,500.0	7,701.3	7,776.2	7,773.2	113.8	19.0	-98.68	-4,859.8	1,504.7	858.5	729.8	128.65	6.673	
13,600.0	7,701.4	7,778.7	7,775.7	115.6	19.0	-99.74	-4,859.9	1,504.7	957.4	827.2	130.12	7.358	
13,700.0	7,701.6	7,781.3	7,778.3	117.5	19.0	-100.81	-4,859.9	1,504.7	1,056.5	924.9	131.54	8.032	
13,800.0	7,701.7	7,783.8	7,780.8	119.3	19.0	-101.88	-4,860.0	1,504.7	1,155.7	1,022.8	132.91	8.695	
13,900.0	7,701.9	7,786.4	7,783.4	121.2	19.0	-102.95	-4,860.0	1,504.7	1,255.1	1,120.9	134.24	9.350	
14,000.0	7,702.0	7,789.0	7,786.0	123.0	19.0	-104.02	-4,860.1	1,504.7	1,354.6	1,219.1	135.51	9.996	
14,100.0	7,702.1	7,791.6	7,788.6	124.9	19.0	-105.09	-4,860.1	1,504.7	1,454.1	1,317.4	136.73	10.635	
14,200.0	7,702.3	7,794.3	7,791.3	126.8	19.0	-106.16	-4,860.2	1,504.7	1,553.7	1,415.8	137.90	11.267	
14,300.0	7,702.4	7,796.9	7,793.9	128.6	19.0	-107.23	-4,860.3	1,504.7	1,653.3	1,514.3	139.01	11.894	
14,400.0	7,702.6	7,799.6	7,796.6	130.5	19.0	-108.29	-4,860.3	1,504.7	1,753.0	1,612.9	140.07	12.515	
14,500.0	7,702.7	7,800.0	7,797.0	132.3	19.0	-108.43	-4,860.3	1,504.7	1,852.7	1,710.9	141.78	13.068	
14,600.0	7,702.8	7,800.0	7,797.0	134.2	19.0	-108.43	-4,860.3	1,504.7	1,952.4	1,808.8	143.59	13.597	
14,700.0	7,703.0	7,800.0	7,797.0	136.1	19.0	-108.43	-4,860.3	1,504.7	2,052.2	1,906.8	145.40	14.114	
14,713.5	7,703.0	7,800.0	7,797.0	136.3	19.0	-108.43	-4,860.3	1,504.7	2,065.7	1,920.0	145.65	14.182	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 6 (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5210-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	96.0	96.0	0.0	1.9	167.59	-6,761.5	1,487.4	6,923.1	6,921.2	1.92	3,605.432	
100.0	100.0	196.0	196.0	0.1	3.9	167.59	-6,761.5	1,487.4	6,923.1	6,919.1	4.03	1,716.803	
200.0	200.0	296.0	296.0	0.3	5.9	167.59	-6,761.5	1,487.4	6,923.1	6,916.9	6.26	1,106.403	
300.0	300.0	396.0	396.0	0.6	7.9	167.59	-6,761.5	1,487.4	6,923.1	6,914.7	8.48	816.206	
400.0	400.0	496.0	496.0	0.8	9.9	167.59	-6,761.5	1,487.4	6,923.1	6,912.4	10.71	646.608	
500.0	500.0	596.0	596.0	1.0	11.9	167.59	-6,761.5	1,487.4	6,923.1	6,910.2	12.93	535.365	
600.0	600.0	696.0	696.0	1.2	13.9	167.59	-6,761.5	1,487.4	6,923.1	6,908.0	15.16	456.780	
700.0	700.0	796.0	796.0	1.5	15.9	167.59	-6,761.5	1,487.4	6,923.1	6,905.8	17.38	398.313	
800.0	800.0	896.0	896.0	1.7	17.9	167.59	-6,761.5	1,487.4	6,923.1	6,903.5	19.61	353.115	
900.0	900.0	996.0	996.0	1.9	19.9	88.01	-6,761.5	1,487.4	6,923.1	6,901.3	21.82	317.282	
1,000.0	999.8	1,095.8	1,095.8	2.1	21.9	88.06	-6,761.5	1,487.4	6,922.9	6,898.9	24.03	288.115	
1,100.0	1,099.5	1,195.5	1,195.5	2.3	23.9	88.13	-6,761.5	1,487.4	6,922.6	6,896.4	26.25	263.754	
1,200.0	1,198.7	1,294.7	1,294.7	2.6	25.9	88.24	-6,761.5	1,487.4	6,922.2	6,893.7	28.48	243.051	
1,300.0	1,297.5	1,393.5	1,393.5	2.9	27.9	88.38	-6,761.5	1,487.4	6,921.8	6,891.0	30.74	225.187	
1,400.0	1,395.6	1,491.6	1,491.6	3.2	29.8	88.54	-6,761.5	1,487.4	6,921.2	6,888.2	33.03	209.569	
1,500.0	1,493.1	1,589.1	1,589.1	3.6	31.8	88.74	-6,761.5	1,487.4	6,920.7	6,885.3	35.35	195.765	
1,600.0	1,589.8	1,685.8	1,685.8	4.0	33.7	88.94	-6,761.5	1,487.4	6,920.2	6,882.4	37.72	183.469	
1,700.0	1,686.4	1,782.4	1,782.4	4.5	35.6	89.15	-6,761.5	1,487.4	6,919.7	6,879.6	40.11	172.512	
1,800.0	1,783.1	1,879.1	1,879.1	4.9	37.6	89.36	-6,761.5	1,487.4	6,919.4	6,876.8	42.52	162.721	
1,900.0	1,879.7	1,975.7	1,975.7	5.4	39.5	89.56	-6,761.5	1,487.4	6,919.1	6,874.2	44.95	153.938	
2,000.0	1,976.4	2,072.4	2,072.4	5.9	41.4	89.77	-6,761.5	1,487.4	6,919.0	6,871.6	47.38	146.024	
2,100.0	2,073.0	2,169.0	2,169.0	6.4	43.4	89.97	-6,761.5	1,487.4	6,918.9	6,869.1	49.82	138.865	
2,113.4	2,086.0	2,182.0	2,182.0	6.5	43.6	90.00	-6,761.5	1,487.4	6,918.9	6,868.7	50.15	137.953	
2,200.0	2,169.6	2,265.6	2,265.6	7.0	45.3	90.18	-6,761.5	1,487.4	6,918.9	6,866.7	52.27	132.361	
2,300.0	2,266.3	2,362.3	2,362.3	7.5	47.2	90.38	-6,761.5	1,487.4	6,919.1	6,864.3	54.73	126.431	
2,400.0	2,362.9	2,458.9	2,458.9	8.0	49.2	90.59	-6,761.5	1,487.4	6,919.3	6,862.1	57.18	121.002	
2,500.0	2,459.6	2,555.6	2,555.6	8.5	51.1	90.79	-6,761.5	1,487.4	6,919.6	6,860.0	59.64	116.017	
2,600.0	2,556.2	2,652.2	2,652.2	9.1	53.0	91.00	-6,761.5	1,487.4	6,920.0	6,857.9	62.11	111.424	
2,700.0	2,652.9	2,748.9	2,748.9	9.6	55.0	91.21	-6,761.5	1,487.4	6,920.5	6,856.0	64.57	107.179	
2,800.0	2,749.5	2,845.5	2,845.5	10.1	56.9	91.41	-6,761.5	1,487.4	6,921.1	6,854.1	67.04	103.245	
2,900.0	2,846.2	2,942.2	2,942.2	10.7	58.8	91.62	-6,761.5	1,487.4	6,921.8	6,852.3	69.50	99.590	
3,000.0	2,942.8	3,038.8	3,038.8	11.2	60.8	91.82	-6,761.5	1,487.4	6,922.6	6,850.7	71.97	96.185	
3,100.0	3,039.4	3,135.4	3,135.4	11.7	62.7	92.03	-6,761.5	1,487.4	6,923.5	6,849.1	74.44	93.006	
3,200.0	3,136.1	3,232.1	3,232.1	12.3	64.6	92.23	-6,761.5	1,487.4	6,924.5	6,847.6	76.91	90.031	
3,300.0	3,232.7	3,328.7	3,328.7	12.8	66.6	92.44	-6,761.5	1,487.4	6,925.6	6,846.2	79.38	87.243	
3,400.0	3,329.4	3,425.4	3,425.4	13.4	68.5	92.64	-6,761.5	1,487.4	6,926.8	6,844.9	81.85	84.623	
3,500.0	3,426.0	3,522.0	3,522.0	13.9	70.4	92.85	-6,761.5	1,487.4	6,928.1	6,843.7	84.33	82.157	
3,600.0	3,522.7	3,618.7	3,618.7	14.4	72.4	93.05	-6,761.5	1,487.4	6,929.4	6,842.6	86.80	79.833	
3,700.0	3,619.3	3,715.3	3,715.3	15.0	74.3	93.26	-6,761.5	1,487.4	6,930.9	6,841.6	89.27	77.638	
3,800.0	3,715.9	3,811.9	3,811.9	15.5	76.2	93.46	-6,761.5	1,487.4	6,932.4	6,840.7	91.74	75.563	
3,900.0	3,812.6	3,908.6	3,908.6	16.1	78.2	93.67	-6,761.5	1,487.4	6,934.1	6,839.9	94.22	73.597	
4,000.0	3,909.2	4,005.2	4,005.2	16.6	80.1	93.87	-6,761.5	1,487.4	6,935.8	6,839.2	96.69	71.733	
4,100.0	4,005.9	4,101.9	4,101.9	17.1	82.0	94.08	-6,761.5	1,487.4	6,937.7	6,838.5	99.16	69.963	
4,200.0	4,102.5	4,198.5	4,198.5	17.7	84.0	94.28	-6,761.5	1,487.4	6,939.6	6,838.0	101.63	68.280	
4,300.0	4,199.2	4,295.2	4,295.2	18.2	85.9	94.49	-6,761.5	1,487.4	6,941.7	6,837.6	104.11	66.678	
4,400.0	4,295.8	4,391.8	4,391.8	18.8	87.8	94.69	-6,761.5	1,487.4	6,943.8	6,837.2	106.58	65.152	
4,500.0	4,392.5	4,488.5	4,488.5	19.3	89.8	94.89	-6,761.5	1,487.4	6,946.0	6,837.0	109.05	63.695	
4,600.0	4,489.1	4,585.1	4,585.1	19.9	91.7	95.10	-6,761.5	1,487.4	6,948.3	6,836.8	111.52	62.304	
4,700.0	4,585.7	4,681.7	4,681.7	20.4	93.6	95.30	-6,761.5	1,487.4	6,950.7	6,836.7	113.99	60.975	
4,800.0	4,682.4	4,778.4	4,778.4	21.0	95.6	95.51	-6,761.5	1,487.4	6,953.2	6,836.8	116.47	59.702	
4,900.0	4,779.0	4,875.0	4,875.0	21.5	97.5	95.71	-6,761.5	1,487.4	6,955.8	6,836.9	118.94	58.484	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 6 (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5210-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,875.7	4,971.7	4,971.7	22.1	99.4	95.91	-6,761.5	1,487.4	6,958.5	6,837.1	121.41	57.316	
5,100.0	4,972.3	5,068.3	5,068.3	22.6	101.4	96.12	-6,761.5	1,487.4	6,961.3	6,837.4	123.88	56.196	
5,200.0	5,069.0	5,165.0	5,165.0	23.1	103.3	96.32	-6,761.5	1,487.4	6,964.2	6,837.8	126.35	55.120	
5,300.0	5,165.6	5,210.0	5,210.0	23.7	104.2	96.41	-6,761.5	1,487.4	6,967.3	6,839.6	127.79	54.523	
5,400.0	5,262.2	5,210.0	5,210.0	24.2	104.2	96.41	-6,761.5	1,487.4	6,971.8	6,843.5	128.33	54.327	
5,500.0	5,358.9	5,210.0	5,210.0	24.8	104.2	96.41	-6,761.5	1,487.4	6,977.7	6,848.8	128.88	54.143	
5,600.0	5,455.5	5,210.0	5,210.0	25.3	104.2	96.41	-6,761.5	1,487.4	6,985.0	6,855.6	129.42	53.971	
5,700.0	5,552.2	5,210.0	5,210.0	25.9	104.2	96.41	-6,761.5	1,487.4	6,993.7	6,863.8	129.97	53.812	
5,800.0	5,648.8	5,210.0	5,210.0	26.4	104.2	96.41	-6,761.5	1,487.4	7,003.9	6,873.4	130.51	53.665	
5,900.0	5,745.5	5,210.0	5,210.0	27.0	104.2	96.41	-6,761.5	1,487.4	7,015.4	6,884.4	131.06	53.530	
6,000.0	5,842.1	5,210.0	5,210.0	27.5	104.2	96.41	-6,761.5	1,487.4	7,028.4	6,896.8	131.60	53.407	
6,100.0	5,938.7	5,210.0	5,210.0	28.1	104.2	96.41	-6,761.5	1,487.4	7,042.7	6,910.6	132.15	53.295	
6,200.0	6,035.4	5,210.0	5,210.0	28.6	104.2	96.41	-6,761.5	1,487.4	7,058.5	6,925.8	132.69	53.195	
6,300.0	6,132.3	5,210.0	5,210.0	29.1	104.2	96.66	-6,761.5	1,487.4	7,075.5	6,942.3	133.18	53.129	
6,400.0	6,229.9	5,210.0	5,210.0	29.5	104.2	97.02	-6,761.5	1,487.4	7,093.5	6,960.0	133.54	53.121	
6,500.0	6,328.2	5,210.0	5,210.0	29.8	104.2	97.41	-6,761.5	1,487.4	7,112.5	6,978.6	133.85	53.139	
6,600.0	6,427.1	5,210.0	5,210.0	30.1	104.2	97.81	-6,761.5	1,487.4	7,132.4	6,998.3	134.11	53.183	
6,700.0	6,526.5	5,210.0	5,210.0	30.3	104.2	98.23	-6,761.5	1,487.4	7,153.1	7,018.8	134.32	53.253	
6,800.0	6,626.2	5,210.0	5,210.0	30.5	104.2	98.67	-6,761.5	1,487.4	7,174.7	7,040.2	134.49	53.347	
6,900.0	6,726.1	5,210.0	5,210.0	30.6	104.2	99.12	-6,761.5	1,487.4	7,197.1	7,062.5	134.61	53.467	
7,000.0	6,826.1	5,210.0	5,210.0	30.7	104.2	179.07	-6,761.5	1,487.4	7,220.3	7,085.6	134.69	53.606	
7,100.0	6,926.1	5,210.0	5,210.0	30.8	104.2	179.07	-6,761.5	1,487.4	7,244.7	7,109.9	134.80	53.744	
7,200.0	7,025.8	5,210.0	5,210.0	30.9	104.2	-0.91	-6,761.5	1,487.4	7,264.5	7,130.7	133.79	54.296	
7,300.0	7,123.9	5,210.0	5,210.0	31.0	104.2	-0.90	-6,761.5	1,487.4	7,272.7	7,142.1	130.53	55.716	
7,400.0	7,218.7	5,210.0	5,210.0	31.0	104.2	-0.91	-6,761.5	1,487.4	7,269.2	7,144.1	125.08	58.114	
7,500.0	7,308.6	5,210.0	5,210.0	31.0	104.2	-0.92	-6,761.5	1,487.4	7,254.0	7,136.5	117.56	61.705	
7,600.0	7,391.9	5,210.0	5,210.0	31.0	104.2	-0.96	-6,761.5	1,487.4	7,227.4	7,119.3	108.11	66.855	
7,700.0	7,467.4	5,210.0	5,210.0	31.0	104.2	-1.01	-6,761.5	1,487.4	7,189.6	7,092.7	96.92	74.180	
7,800.0	7,533.7	5,210.0	5,210.0	31.0	104.2	-1.09	-6,761.5	1,487.4	7,141.2	7,057.0	84.25	84.763	
7,900.0	7,589.7	5,210.0	5,210.0	31.1	104.2	-1.19	-6,761.5	1,487.4	7,082.7	7,012.4	70.40	100.612	
8,000.0	7,634.3	5,210.0	5,210.0	31.3	104.2	-1.35	-6,761.5	1,487.4	7,015.0	6,959.3	55.76	125.814	
8,100.0	7,667.0	5,210.0	5,210.0	31.5	104.2	-1.57	-6,761.5	1,487.4	6,938.9	6,898.0	40.86	169.814	
8,200.0	7,687.0	5,210.0	5,210.0	31.8	104.2	-1.92	-6,761.5	1,487.4	6,855.5	6,828.9	26.51	258.623	
8,300.0	7,694.0	5,210.0	5,210.0	32.2	104.2	-2.50	-6,761.5	1,487.4	6,765.9	6,749.4	16.48	410.518	
8,400.0	7,694.2	5,210.0	5,210.0	32.8	104.2	-2.53	-6,761.5	1,487.4	6,673.6	6,656.6	16.97	393.348	
8,500.0	7,694.3	5,210.0	5,210.0	33.4	104.2	-2.53	-6,761.5	1,487.4	6,581.6	6,564.1	17.46	376.986	
8,600.0	7,694.5	5,210.0	5,210.0	34.2	104.2	-2.53	-6,761.5	1,487.4	6,489.8	6,471.8	17.97	361.081	
8,700.0	7,694.6	5,210.0	5,210.0	35.0	104.2	-2.53	-6,761.5	1,487.4	6,398.2	6,379.7	18.51	345.698	
8,800.0	7,694.7	5,210.0	5,210.0	35.9	104.2	-2.53	-6,761.5	1,487.4	6,306.9	6,287.8	19.06	330.883	
8,900.0	7,694.9	5,210.0	5,210.0	37.0	104.2	-2.53	-6,761.5	1,487.4	6,215.9	6,196.2	19.63	316.660	
9,000.0	7,695.0	5,210.0	5,210.0	38.1	104.2	-2.53	-6,761.5	1,487.4	6,125.1	6,104.9	20.21	303.040	
9,100.0	7,695.2	5,210.0	5,210.0	39.2	104.2	-2.53	-6,761.5	1,487.4	6,034.7	6,013.8	20.81	290.021	
9,200.0	7,695.3	5,210.0	5,210.0	40.5	104.2	-2.53	-6,761.5	1,487.4	5,944.5	5,923.1	21.41	277.594	
9,300.0	7,695.4	5,210.0	5,210.0	41.8	104.2	-2.53	-6,761.5	1,487.4	5,854.7	5,832.6	22.03	265.745	
9,400.0	7,695.6	5,210.0	5,210.0	43.1	104.2	-2.53	-6,761.5	1,487.4	5,765.2	5,742.5	22.66	254.453	
9,500.0	7,695.7	5,210.0	5,210.0	44.5	104.2	-2.53	-6,761.5	1,487.4	5,676.0	5,652.7	23.29	243.699	
9,600.0	7,695.9	5,210.0	5,210.0	45.9	104.2	-2.53	-6,761.5	1,487.4	5,587.2	5,563.3	23.93	233.458	
9,700.0	7,696.0	5,210.0	5,210.0	47.4	104.2	-2.53	-6,761.5	1,487.4	5,498.8	5,474.2	24.58	223.707	
9,800.0	7,696.1	5,210.0	5,210.0	48.9	104.2	-2.53	-6,761.5	1,487.4	5,410.8	5,385.6	25.23	214.422	
9,900.0	7,696.3	5,210.0	5,210.0	50.4	104.2	-2.53	-6,761.5	1,487.4	5,323.3	5,297.4	25.89	205.578	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 6 (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5210-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,696.4	5,210.0	5,210.0	52.0	104.2	-2.53	-6,761.5	1,487.4	5,236.1	5,209.6	26.56	197.154	
10,100.0	7,696.6	5,210.0	5,210.0	53.6	104.2	-2.53	-6,761.5	1,487.4	5,149.5	5,122.3	27.23	189.127	
10,200.0	7,696.7	5,210.0	5,210.0	55.2	104.2	-2.53	-6,761.5	1,487.4	5,063.3	5,035.4	27.90	181.475	
10,300.0	7,696.8	5,210.0	5,210.0	56.8	104.2	-2.53	-6,761.5	1,487.4	4,977.7	4,949.1	28.58	174.179	
10,400.0	7,697.0	5,210.0	5,210.0	58.4	104.2	-2.53	-6,761.5	1,487.4	4,892.6	4,863.3	29.26	167.220	
10,500.0	7,697.1	5,210.0	5,210.0	60.1	104.2	-2.53	-6,761.5	1,487.4	4,808.0	4,778.1	29.94	160.579	
10,600.0	7,697.3	5,210.0	5,210.0	61.8	104.2	-2.53	-6,761.5	1,487.4	4,724.1	4,693.5	30.63	154.239	
10,700.0	7,697.4	5,210.0	5,210.0	63.5	104.2	-2.53	-6,761.5	1,487.4	4,640.8	4,609.5	31.32	148.184	
10,800.0	7,697.5	5,210.0	5,210.0	65.2	104.2	-2.53	-6,761.5	1,487.4	4,558.2	4,526.2	32.01	142.400	
10,900.0	7,697.7	5,210.0	5,210.0	66.9	104.2	-2.53	-6,761.5	1,487.4	4,476.3	4,443.6	32.70	136.873	
11,000.0	7,697.8	5,210.0	5,210.0	68.6	104.2	-2.53	-6,761.5	1,487.4	4,395.1	4,361.7	33.40	131.590	
11,100.0	7,698.0	5,210.0	5,210.0	70.3	104.2	-2.53	-6,761.5	1,487.4	4,314.8	4,280.7	34.10	126.538	
11,200.0	7,698.1	5,210.0	5,210.0	72.1	104.2	-2.53	-6,761.5	1,487.4	4,235.2	4,200.4	34.80	121.706	
11,300.0	7,698.2	5,210.0	5,210.0	73.8	104.2	-2.53	-6,761.5	1,487.4	4,156.6	4,121.1	35.50	117.084	
11,400.0	7,698.4	5,210.0	5,210.0	75.6	104.2	-2.53	-6,761.5	1,487.4	4,078.9	4,042.7	36.20	112.662	
11,500.0	7,698.5	5,210.0	5,210.0	77.4	104.2	-2.53	-6,761.5	1,487.4	4,002.1	3,965.2	36.91	108.431	
11,600.0	7,698.7	5,210.0	5,210.0	79.1	104.2	-2.53	-6,761.5	1,487.4	3,926.5	3,888.9	37.62	104.383	
11,700.0	7,698.8	5,210.0	5,210.0	80.9	104.2	-2.53	-6,761.5	1,487.4	3,851.9	3,813.6	38.32	100.509	
11,800.0	7,698.9	5,210.0	5,210.0	82.7	104.2	-2.53	-6,761.5	1,487.4	3,778.5	3,739.5	39.03	96.803	
11,900.0	7,699.1	5,210.0	5,210.0	84.5	104.2	-2.53	-6,761.5	1,487.4	3,706.4	3,666.6	39.74	93.257	
12,000.0	7,699.2	5,210.0	5,210.0	86.3	104.2	-2.53	-6,761.5	1,487.4	3,635.5	3,595.1	40.45	89.867	
12,100.0	7,699.4	5,210.0	5,210.0	88.1	104.2	-2.53	-6,761.5	1,487.4	3,566.1	3,525.0	41.17	86.625	
12,200.0	7,699.5	5,210.0	5,210.0	89.9	104.2	-2.53	-6,761.5	1,487.4	3,498.2	3,456.3	41.88	83.527	
12,300.0	7,699.6	5,210.0	5,210.0	91.7	104.2	-2.53	-6,761.5	1,487.4	3,431.8	3,389.2	42.60	80.568	
12,400.0	7,699.8	5,210.0	5,210.0	93.6	104.2	-2.53	-6,761.5	1,487.4	3,367.1	3,323.8	43.31	77.743	
12,500.0	7,699.9	5,210.0	5,210.0	95.4	104.2	-2.53	-6,761.5	1,487.4	3,304.1	3,260.1	44.03	75.049	
12,600.0	7,700.0	5,210.0	5,210.0	97.2	104.2	-2.53	-6,761.5	1,487.4	3,243.0	3,198.3	44.74	72.481	
12,700.0	7,700.2	5,210.0	5,210.0	99.0	104.2	-2.53	-6,761.5	1,487.4	3,183.9	3,138.4	45.46	70.036	
12,800.0	7,700.3	5,210.0	5,210.0	100.9	104.2	-2.53	-6,761.5	1,487.4	3,126.9	3,080.7	46.18	67.711	
12,900.0	7,700.5	5,210.0	5,210.0	102.7	104.2	-2.53	-6,761.5	1,487.4	3,072.0	3,025.1	46.90	65.504	
13,000.0	7,700.6	5,210.0	5,210.0	104.5	104.2	-2.53	-6,761.5	1,487.4	3,019.5	2,971.9	47.62	63.411	
13,100.0	7,700.7	5,210.0	5,210.0	106.4	104.2	-2.53	-6,761.5	1,487.4	2,969.4	2,921.0	48.34	61.430	
13,200.0	7,700.9	5,210.0	5,210.0	108.2	104.2	-2.53	-6,761.5	1,487.4	2,921.9	2,872.8	49.06	59.558	
13,300.0	7,701.0	5,210.0	5,210.0	110.1	104.2	-2.53	-6,761.5	1,487.4	2,877.0	2,827.2	49.78	57.795	
13,400.0	7,701.2	5,210.0	5,210.0	111.9	104.2	-2.53	-6,761.5	1,487.4	2,835.0	2,784.5	50.50	56.137	
13,500.0	7,701.3	5,210.0	5,210.0	113.8	104.2	-2.53	-6,761.5	1,487.4	2,795.9	2,744.7	51.22	54.582	
13,600.0	7,701.4	5,210.0	5,210.0	115.6	104.2	-2.53	-6,761.5	1,487.4	2,759.9	2,708.0	51.95	53.130	
13,700.0	7,701.6	5,210.0	5,210.0	117.5	104.2	-2.53	-6,761.5	1,487.4	2,727.1	2,674.5	52.67	51.778	
13,800.0	7,701.7	5,210.0	5,210.0	119.3	104.2	-2.53	-6,761.5	1,487.4	2,697.6	2,644.3	53.39	50.523	
13,900.0	7,701.9	5,210.0	5,210.0	121.2	104.2	-2.53	-6,761.5	1,487.4	2,671.6	2,617.5	54.12	49.366	
14,000.0	7,702.0	5,210.0	5,210.0	123.0	104.2	-2.53	-6,761.5	1,487.4	2,649.0	2,594.2	54.84	48.302	
14,100.0	7,702.1	5,210.0	5,210.0	124.9	104.2	-2.53	-6,761.5	1,487.4	2,630.1	2,574.5	55.57	47.331	
14,200.0	7,702.3	5,210.0	5,210.0	126.8	104.2	-2.53	-6,761.5	1,487.4	2,614.8	2,558.5	56.29	46.450	
14,300.0	7,702.4	5,210.0	5,210.0	128.6	104.2	-2.53	-6,761.5	1,487.4	2,603.3	2,546.3	57.02	45.658	
14,400.0	7,702.6	5,210.0	5,210.0	130.5	104.2	-2.53	-6,761.5	1,487.4	2,595.6	2,537.9	57.74	44.950	
14,500.0	7,702.7	5,210.0	5,210.0	132.3	104.2	-2.53	-6,761.5	1,487.4	2,591.8	2,533.3	58.47	44.326	
14,550.0	7,702.8	5,210.0	5,210.0	133.3	104.2	-2.53	-6,761.5	1,487.4	2,591.3	2,532.5	58.83	44.044	CC, ES
14,600.0	7,702.8	5,210.0	5,210.0	134.2	104.2	-2.53	-6,761.5	1,487.4	2,591.8	2,532.6	59.20	43.782	
14,700.0	7,703.0	5,210.0	5,210.0	136.1	104.2	-2.53	-6,761.5	1,487.4	2,595.6	2,535.7	59.92	43.316	
14,713.5	7,703.0	5,210.0	5,210.0	136.3	104.2	-2.53	-6,761.5	1,487.4	2,596.5	2,536.4	60.02	43.258	SF

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 7 (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5135-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	165.59	-4,251.6	1,092.2	4,390.0				
100.0	100.0	43.0	43.0	0.1	0.9	165.59	-4,251.6	1,092.2	4,389.6	4,388.6	0.97	4,513.354	
200.0	200.0	143.0	143.0	0.3	2.9	165.59	-4,251.6	1,092.2	4,389.6	4,386.4	3.20	1,372.891	
300.0	300.0	243.0	243.0	0.6	4.9	165.59	-4,251.6	1,092.2	4,389.6	4,384.2	5.42	809.575	
400.0	400.0	343.0	343.0	0.8	6.9	165.59	-4,251.6	1,092.2	4,389.6	4,382.0	7.65	574.039	
500.0	500.0	443.0	443.0	1.0	8.9	165.59	-4,251.6	1,092.2	4,389.6	4,379.7	9.87	444.669	
600.0	600.0	543.0	543.0	1.2	10.9	165.59	-4,251.6	1,092.2	4,389.6	4,377.5	12.10	362.885	
700.0	700.0	643.0	643.0	1.5	12.9	165.59	-4,251.6	1,092.2	4,389.6	4,375.3	14.32	306.512	
800.0	800.0	743.0	743.0	1.7	14.9	165.59	-4,251.6	1,092.2	4,389.6	4,373.1	16.55	265.298	
900.0	900.0	843.0	843.0	1.9	16.9	86.02	-4,251.6	1,092.2	4,389.5	4,370.7	18.76	233.982	
1,000.0	999.8	942.8	942.8	2.1	18.9	86.09	-4,251.6	1,092.2	4,389.1	4,368.2	20.97	209.325	
1,100.0	1,099.5	1,042.5	1,042.5	2.3	20.8	86.22	-4,251.6	1,092.2	4,388.5	4,365.3	23.19	189.277	
1,200.0	1,198.7	1,141.7	1,141.7	2.6	22.8	86.39	-4,251.6	1,092.2	4,387.7	4,362.3	25.42	172.615	
1,300.0	1,297.5	1,240.5	1,240.5	2.9	24.8	86.61	-4,251.6	1,092.2	4,386.8	4,359.1	27.68	158.505	
1,400.0	1,395.6	1,338.6	1,338.6	3.2	26.8	86.88	-4,251.6	1,092.2	4,385.7	4,355.7	29.96	146.368	
1,500.0	1,493.1	1,436.1	1,436.1	3.6	28.7	87.19	-4,251.6	1,092.2	4,384.5	4,352.2	32.29	135.791	
1,600.0	1,589.8	1,532.8	1,532.8	4.0	30.7	87.52	-4,251.6	1,092.2	4,383.3	4,348.6	34.65	126.484	
1,700.0	1,686.4	1,629.4	1,629.4	4.5	32.6	87.84	-4,251.6	1,092.2	4,382.2	4,345.1	37.05	118.284	
1,800.0	1,783.1	1,726.1	1,726.1	4.9	34.5	88.17	-4,251.6	1,092.2	4,381.3	4,341.8	39.46	111.032	
1,900.0	1,879.7	1,822.7	1,822.7	5.4	36.5	88.49	-4,251.6	1,092.2	4,380.5	4,338.6	41.88	104.585	
2,000.0	1,976.4	1,919.4	1,919.4	5.9	38.4	88.82	-4,251.6	1,092.2	4,379.9	4,335.6	44.32	98.825	
2,100.0	2,073.0	2,016.0	2,016.0	6.4	40.3	89.14	-4,251.6	1,092.2	4,379.4	4,332.6	46.76	93.652	
2,200.0	2,169.6	2,112.6	2,112.6	7.0	42.3	89.47	-4,251.6	1,092.2	4,379.1	4,329.9	49.21	88.985	
2,300.0	2,266.3	2,209.3	2,209.3	7.5	44.2	89.79	-4,251.6	1,092.2	4,378.9	4,327.2	51.67	84.756	
2,364.0	2,328.1	2,271.1	2,271.1	7.8	45.4	90.00	-4,251.6	1,092.2	4,378.9	4,325.6	53.24	82.251	
2,400.0	2,362.9	2,305.9	2,305.9	8.0	46.1	90.12	-4,251.6	1,092.2	4,378.9	4,324.8	54.12	80.907	
2,500.0	2,459.6	2,402.6	2,402.6	8.5	48.1	90.44	-4,251.6	1,092.2	4,379.0	4,322.4	56.58	77.391	
2,600.0	2,556.2	2,499.2	2,499.2	9.1	50.0	90.77	-4,251.6	1,092.2	4,379.3	4,320.2	59.05	74.168	
2,700.0	2,652.9	2,595.9	2,595.9	9.6	51.9	91.09	-4,251.6	1,092.2	4,379.7	4,318.2	61.51	71.203	
2,800.0	2,749.5	2,692.5	2,692.5	10.1	53.9	91.42	-4,251.6	1,092.2	4,380.3	4,316.3	63.98	68.468	
2,900.0	2,846.2	2,789.2	2,789.2	10.7	55.8	91.74	-4,251.6	1,092.2	4,381.0	4,314.6	66.44	65.936	
3,000.0	2,942.8	2,885.8	2,885.8	11.2	57.7	92.07	-4,251.6	1,092.2	4,381.9	4,313.0	68.91	63.588	
3,100.0	3,039.4	2,982.4	2,982.4	11.7	59.6	92.39	-4,251.6	1,092.2	4,383.0	4,311.6	71.38	61.403	
3,200.0	3,136.1	3,079.1	3,079.1	12.3	61.6	92.71	-4,251.6	1,092.2	4,384.1	4,310.3	73.85	59.365	
3,300.0	3,232.7	3,175.7	3,175.7	12.8	63.5	93.04	-4,251.6	1,092.2	4,385.5	4,309.2	76.32	57.462	
3,400.0	3,329.4	3,272.4	3,272.4	13.4	65.4	93.36	-4,251.6	1,092.2	4,387.0	4,308.2	78.79	55.679	
3,500.0	3,426.0	3,369.0	3,369.0	13.9	67.4	93.69	-4,251.6	1,092.2	4,388.6	4,307.3	81.26	54.007	
3,600.0	3,522.7	3,465.7	3,465.7	14.4	69.3	94.01	-4,251.6	1,092.2	4,390.4	4,306.6	83.73	52.435	
3,700.0	3,619.3	3,562.3	3,562.3	15.0	71.2	94.33	-4,251.6	1,092.2	4,392.3	4,306.1	86.20	50.956	
3,800.0	3,715.9	3,658.9	3,658.9	15.5	73.2	94.65	-4,251.6	1,092.2	4,394.4	4,305.7	88.67	49.560	
3,900.0	3,812.6	3,755.6	3,755.6	16.1	75.1	94.98	-4,251.6	1,092.2	4,396.6	4,305.5	91.14	48.242	
4,000.0	3,909.2	3,852.2	3,852.2	16.6	77.0	95.30	-4,251.6	1,092.2	4,399.0	4,305.4	93.61	46.995	
4,100.0	4,005.9	3,948.9	3,948.9	17.1	79.0	95.62	-4,251.6	1,092.2	4,401.5	4,305.5	96.07	45.814	
4,200.0	4,102.5	4,045.5	4,045.5	17.7	80.9	95.94	-4,251.6	1,092.2	4,404.2	4,305.7	98.54	44.695	
4,300.0	4,199.2	4,142.2	4,142.2	18.2	82.8	96.26	-4,251.6	1,092.2	4,407.0	4,306.0	101.01	43.631	
4,400.0	4,295.8	4,238.8	4,238.8	18.8	84.8	96.59	-4,251.6	1,092.2	4,410.0	4,306.5	103.47	42.620	
4,500.0	4,392.5	4,335.5	4,335.5	19.3	86.7	96.91	-4,251.6	1,092.2	4,413.1	4,307.2	105.94	41.658	
4,600.0	4,489.1	4,432.1	4,432.1	19.9	88.6	97.23	-4,251.6	1,092.2	4,416.4	4,308.0	108.40	40.742	
4,700.0	4,585.7	4,528.7	4,528.7	20.4	90.6	97.55	-4,251.6	1,092.2	4,419.8	4,308.9	110.86	39.867	
4,800.0	4,682.4	4,625.4	4,625.4	21.0	92.5	97.86	-4,251.6	1,092.2	4,423.4	4,310.0	113.32	39.033	
4,900.0	4,779.0	4,722.0	4,722.0	21.5	94.4	98.18	-4,251.6	1,092.2	4,427.1	4,311.3	115.79	38.235	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 7 (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5135-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,875.7	4,818.7	4,818.7	22.1	96.4	98.50	-4,251.6	1,092.2	4,430.9	4,312.7	118.24	37.473	
5,100.0	4,972.3	4,915.3	4,915.3	22.6	98.3	98.82	-4,251.6	1,092.2	4,434.9	4,314.2	120.70	36.743	
5,200.0	5,069.0	5,012.0	5,012.0	23.1	100.2	99.14	-4,251.6	1,092.2	4,439.1	4,315.9	123.16	36.043	
5,300.0	5,165.6	5,108.6	5,108.6	23.7	102.2	99.45	-4,251.6	1,092.2	4,443.4	4,317.7	125.62	35.373	
5,400.0	5,262.2	5,135.0	5,135.0	24.2	102.7	99.54	-4,251.6	1,092.2	4,448.4	4,321.7	126.68	35.115	
5,500.0	5,358.9	5,135.0	5,135.0	24.8	102.7	99.54	-4,251.6	1,092.2	4,455.5	4,328.3	127.22	35.022	
5,600.0	5,455.5	5,135.0	5,135.0	25.3	102.7	99.54	-4,251.6	1,092.2	4,464.9	4,337.1	127.76	34.946	
5,700.0	5,552.2	5,135.0	5,135.0	25.9	102.7	99.54	-4,251.6	1,092.2	4,476.5	4,348.2	128.31	34.889	
5,800.0	5,648.8	5,135.0	5,135.0	26.4	102.7	99.54	-4,251.6	1,092.2	4,490.3	4,361.4	128.85	34.849	
5,900.0	5,745.5	5,135.0	5,135.0	27.0	102.7	99.54	-4,251.6	1,092.2	4,506.2	4,376.8	129.39	34.826	
6,000.0	5,842.1	5,135.0	5,135.0	27.5	102.7	99.54	-4,251.6	1,092.2	4,524.3	4,394.4	129.93	34.821	SF
6,100.0	5,938.7	5,135.0	5,135.0	28.1	102.7	99.54	-4,251.6	1,092.2	4,544.6	4,414.1	130.48	34.831	
6,200.0	6,035.4	5,135.0	5,135.0	28.6	102.7	99.54	-4,251.6	1,092.2	4,567.0	4,435.9	131.02	34.857	
6,300.0	6,132.3	5,135.0	5,135.0	29.1	102.7	99.89	-4,251.6	1,092.2	4,591.2	4,459.7	131.50	34.915	
6,400.0	6,229.9	5,135.0	5,135.0	29.5	102.7	100.41	-4,251.6	1,092.2	4,617.0	4,485.1	131.85	35.018	
6,500.0	6,328.2	5,135.0	5,135.0	29.8	102.7	100.97	-4,251.6	1,092.2	4,644.2	4,512.0	132.15	35.144	
6,600.0	6,427.1	5,135.0	5,135.0	30.1	102.7	101.55	-4,251.6	1,092.2	4,672.7	4,540.3	132.40	35.294	
6,700.0	6,526.5	5,135.0	5,135.0	30.3	102.7	102.16	-4,251.6	1,092.2	4,702.5	4,569.9	132.59	35.466	
6,800.0	6,626.2	5,135.0	5,135.0	30.5	102.7	102.80	-4,251.6	1,092.2	4,733.5	4,600.8	132.74	35.661	
6,900.0	6,726.1	5,135.0	5,135.0	30.6	102.7	103.46	-4,251.6	1,092.2	4,765.7	4,632.9	132.83	35.878	
7,000.0	6,826.1	5,135.0	5,135.0	30.7	102.7	-176.43	-4,251.6	1,092.2	4,799.1	4,666.2	132.89	36.113	
7,100.0	6,926.1	5,135.0	5,135.0	30.8	102.7	-176.43	-4,251.6	1,092.2	4,834.0	4,701.0	133.00	36.346	
7,200.0	7,025.8	5,135.0	5,135.0	30.9	102.7	3.43	-4,251.6	1,092.2	4,865.1	4,733.1	132.01	36.854	
7,300.0	7,123.9	5,135.0	5,135.0	31.0	102.7	3.33	-4,251.6	1,092.2	4,885.6	4,756.8	128.80	37.931	
7,400.0	7,218.7	5,135.0	5,135.0	31.0	102.7	3.29	-4,251.6	1,092.2	4,895.1	4,771.6	123.44	39.655	
7,500.0	7,308.6	5,135.0	5,135.0	31.0	102.7	3.30	-4,251.6	1,092.2	4,893.6	4,777.6	116.04	42.172	
7,600.0	7,391.9	5,135.0	5,135.0	31.0	102.7	3.35	-4,251.6	1,092.2	4,881.1	4,774.4	106.74	45.728	
7,700.0	7,467.4	5,135.0	5,135.0	31.0	102.7	3.46	-4,251.6	1,092.2	4,857.7	4,762.0	95.75	50.735	
7,800.0	7,533.7	5,135.0	5,135.0	31.0	102.7	3.63	-4,251.6	1,092.2	4,823.8	4,740.5	83.31	57.905	
7,900.0	7,589.7	5,135.0	5,135.0	31.1	102.7	3.87	-4,251.6	1,092.2	4,779.6	4,709.8	69.73	68.546	
8,000.0	7,634.3	5,135.0	5,135.0	31.3	102.7	4.21	-4,251.6	1,092.2	4,725.6	4,670.1	55.44	85.236	
8,100.0	7,667.0	5,135.0	5,135.0	31.5	102.7	4.69	-4,251.6	1,092.2	4,662.4	4,621.3	41.10	113.450	
8,200.0	7,687.0	5,135.0	5,135.0	31.8	102.7	5.36	-4,251.6	1,092.2	4,590.8	4,562.7	28.11	163.331	
8,300.0	7,694.0	5,135.0	5,135.0	32.2	102.7	6.36	-4,251.6	1,092.2	4,511.6	4,489.5	22.04	204.722	
8,400.0	7,694.2	5,135.0	5,135.0	32.8	102.7	6.39	-4,251.6	1,092.2	4,429.0	4,406.5	22.51	196.722	
8,500.0	7,694.3	5,135.0	5,135.0	33.4	102.7	6.39	-4,251.6	1,092.2	4,347.2	4,324.2	22.98	189.147	
8,600.0	7,694.5	5,135.0	5,135.0	34.2	102.7	6.39	-4,251.6	1,092.2	4,266.2	4,242.7	23.48	181.678	
8,700.0	7,694.6	5,135.0	5,135.0	35.0	102.7	6.39	-4,251.6	1,092.2	4,185.9	4,161.9	24.01	174.365	
8,800.0	7,694.7	5,135.0	5,135.0	35.9	102.7	6.39	-4,251.6	1,092.2	4,106.6	4,082.0	24.55	167.243	
8,900.0	7,694.9	5,135.0	5,135.0	37.0	102.7	6.39	-4,251.6	1,092.2	4,028.2	4,003.0	25.12	160.340	
9,000.0	7,695.0	5,135.0	5,135.0	38.1	102.7	6.39	-4,251.6	1,092.2	3,950.7	3,925.0	25.71	153.674	
9,100.0	7,695.2	5,135.0	5,135.0	39.2	102.7	6.39	-4,251.6	1,092.2	3,874.3	3,848.0	26.31	147.256	
9,200.0	7,695.3	5,135.0	5,135.0	40.5	102.7	6.39	-4,251.6	1,092.2	3,798.9	3,772.0	26.93	141.093	
9,300.0	7,695.4	5,135.0	5,135.0	41.8	102.7	6.39	-4,251.6	1,092.2	3,724.8	3,697.2	27.55	135.188	
9,400.0	7,695.6	5,135.0	5,135.0	43.1	102.7	6.39	-4,251.6	1,092.2	3,651.8	3,623.6	28.19	129.539	
9,500.0	7,695.7	5,135.0	5,135.0	44.5	102.7	6.39	-4,251.6	1,092.2	3,580.2	3,551.4	28.84	124.144	
9,600.0	7,695.9	5,135.0	5,135.0	45.9	102.7	6.39	-4,251.6	1,092.2	3,510.0	3,480.5	29.50	118.998	
9,700.0	7,696.0	5,135.0	5,135.0	47.4	102.7	6.39	-4,251.6	1,092.2	3,441.2	3,411.0	30.16	114.096	
9,800.0	7,696.1	5,135.0	5,135.0	48.9	102.7	6.39	-4,251.6	1,092.2	3,374.0	3,343.1	30.83	109.431	
9,900.0	7,696.3	5,135.0	5,135.0	50.4	102.7	6.39	-4,251.6	1,092.2	3,308.4	3,276.9	31.51	104.997	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 7 (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5135-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,696.4	5,135.0	5,135.0	52.0	102.7	6.39	-4,251.6	1,092.2	3,244.6	3,212.4	32.19	100.787	
10,100.0	7,696.6	5,135.0	5,135.0	53.6	102.7	6.39	-4,251.6	1,092.2	3,182.7	3,149.8	32.88	96.794	
10,200.0	7,696.7	5,135.0	5,135.0	55.2	102.7	6.39	-4,251.6	1,092.2	3,122.7	3,089.2	33.57	93.010	
10,300.0	7,696.8	5,135.0	5,135.0	56.8	102.7	6.39	-4,251.6	1,092.2	3,064.9	3,030.6	34.27	89.429	
10,400.0	7,697.0	5,135.0	5,135.0	58.4	102.7	6.39	-4,251.6	1,092.2	3,009.2	2,974.3	34.97	86.045	
10,500.0	7,697.1	5,135.0	5,135.0	60.1	102.7	6.39	-4,251.6	1,092.2	2,955.9	2,920.2	35.68	82.852	
10,600.0	7,697.3	5,135.0	5,135.0	61.8	102.7	6.39	-4,251.6	1,092.2	2,905.1	2,868.7	36.39	79.842	
10,700.0	7,697.4	5,135.0	5,135.0	63.5	102.7	6.39	-4,251.6	1,092.2	2,856.8	2,819.7	37.10	77.012	
10,800.0	7,697.5	5,135.0	5,135.0	65.2	102.7	6.39	-4,251.6	1,092.2	2,811.3	2,773.5	37.81	74.355	
10,900.0	7,697.7	5,135.0	5,135.0	66.9	102.7	6.39	-4,251.6	1,092.2	2,768.6	2,730.1	38.52	71.866	
11,000.0	7,697.8	5,135.0	5,135.0	68.6	102.7	6.39	-4,251.6	1,092.2	2,729.0	2,689.7	39.24	69.540	
11,100.0	7,698.0	5,135.0	5,135.0	70.3	102.7	6.39	-4,251.6	1,092.2	2,692.4	2,652.5	39.96	67.373	
11,200.0	7,698.1	5,135.0	5,135.0	72.1	102.7	6.39	-4,251.6	1,092.2	2,659.2	2,618.5	40.69	65.359	
11,300.0	7,698.2	5,135.0	5,135.0	73.8	102.7	6.39	-4,251.6	1,092.2	2,629.3	2,587.9	41.41	63.494	
11,400.0	7,698.4	5,135.0	5,135.0	75.6	102.7	6.39	-4,251.6	1,092.2	2,602.9	2,560.8	42.14	61.775	
11,500.0	7,698.5	5,135.0	5,135.0	77.4	102.7	6.39	-4,251.6	1,092.2	2,580.1	2,537.3	42.86	60.195	
11,600.0	7,698.7	5,135.0	5,135.0	79.1	102.7	6.39	-4,251.6	1,092.2	2,561.1	2,517.5	43.59	58.751	
11,700.0	7,698.8	5,135.0	5,135.0	80.9	102.7	6.39	-4,251.6	1,092.2	2,545.8	2,501.5	44.32	57.439	
11,800.0	7,698.9	5,135.0	5,135.0	82.7	102.7	6.39	-4,251.6	1,092.2	2,534.4	2,489.3	45.05	56.253	
11,900.0	7,699.1	5,135.0	5,135.0	84.5	102.7	6.39	-4,251.6	1,092.2	2,526.8	2,481.1	45.79	55.188	
12,000.0	7,699.2	5,135.0	5,135.0	86.3	102.7	6.39	-4,251.6	1,092.2	2,523.3	2,476.8	46.52	54.241	
12,040.2	7,699.3	5,135.0	5,135.0	87.0	102.7	6.39	-4,251.6	1,092.2	2,523.0	2,476.1	46.81	53.892	CC, ES
12,100.0	7,699.4	5,135.0	5,135.0	88.1	102.7	6.39	-4,251.6	1,092.2	2,523.7	2,476.4	47.25	53.406	
12,200.0	7,699.5	5,135.0	5,135.0	89.9	102.7	6.39	-4,251.6	1,092.2	2,528.0	2,480.0	47.99	52.677	
12,300.0	7,699.6	5,135.0	5,135.0	91.7	102.7	6.39	-4,251.6	1,092.2	2,536.3	2,487.6	48.73	52.051	
12,400.0	7,699.8	5,135.0	5,135.0	93.6	102.7	6.39	-4,251.6	1,092.2	2,548.5	2,499.0	49.46	51.521	
12,500.0	7,699.9	5,135.0	5,135.0	95.4	102.7	6.39	-4,251.6	1,092.2	2,564.5	2,514.3	50.20	51.083	
12,600.0	7,700.0	5,135.0	5,135.0	97.2	102.7	6.39	-4,251.6	1,092.2	2,584.3	2,533.4	50.94	50.730	
12,700.0	7,700.2	5,135.0	5,135.0	99.0	102.7	6.39	-4,251.6	1,092.2	2,607.8	2,556.1	51.68	50.458	
12,800.0	7,700.3	5,135.0	5,135.0	100.9	102.7	6.39	-4,251.6	1,092.2	2,634.9	2,582.5	52.42	50.262	
12,900.0	7,700.5	5,135.0	5,135.0	102.7	102.7	6.39	-4,251.6	1,092.2	2,665.4	2,612.3	53.16	50.136	
13,000.0	7,700.6	5,135.0	5,135.0	104.5	102.7	6.39	-4,251.6	1,092.2	2,699.4	2,645.5	53.91	50.075	
13,100.0	7,700.7	5,135.0	5,135.0	106.4	102.7	6.39	-4,251.6	1,092.2	2,736.5	2,681.9	54.65	50.074	
13,200.0	7,700.9	5,135.0	5,135.0	108.2	102.7	6.39	-4,251.6	1,092.2	2,776.8	2,721.4	55.39	50.129	
13,300.0	7,701.0	5,135.0	5,135.0	110.1	102.7	6.39	-4,251.6	1,092.2	2,820.0	2,763.9	56.14	50.235	
13,400.0	7,701.2	5,135.0	5,135.0	111.9	102.7	6.39	-4,251.6	1,092.2	2,866.1	2,809.2	56.88	50.388	
13,500.0	7,701.3	5,135.0	5,135.0	113.8	102.7	6.39	-4,251.6	1,092.2	2,914.9	2,857.2	57.62	50.584	
13,600.0	7,701.4	5,135.0	5,135.0	115.6	102.7	6.39	-4,251.6	1,092.2	2,966.2	2,907.8	58.37	50.817	
13,700.0	7,701.6	5,135.0	5,135.0	117.5	102.7	6.39	-4,251.6	1,092.2	3,020.0	2,960.9	59.12	51.086	
13,800.0	7,701.7	5,135.0	5,135.0	119.3	102.7	6.39	-4,251.6	1,092.2	3,076.1	3,016.2	59.86	51.387	
13,900.0	7,701.9	5,135.0	5,135.0	121.2	102.7	6.39	-4,251.6	1,092.2	3,134.4	3,073.8	60.61	51.716	
14,000.0	7,702.0	5,135.0	5,135.0	123.0	102.7	6.39	-4,251.6	1,092.2	3,194.7	3,133.4	61.35	52.070	
14,100.0	7,702.1	5,135.0	5,135.0	124.9	102.7	6.39	-4,251.6	1,092.2	3,257.0	3,194.9	62.10	52.447	
14,200.0	7,702.3	5,135.0	5,135.0	126.8	102.7	6.39	-4,251.6	1,092.2	3,321.2	3,258.3	62.85	52.844	
14,300.0	7,702.4	5,135.0	5,135.0	128.6	102.7	6.39	-4,251.6	1,092.2	3,387.0	3,323.5	63.60	53.258	
14,400.0	7,702.6	5,135.0	5,135.0	130.5	102.7	6.39	-4,251.6	1,092.2	3,454.6	3,390.2	64.34	53.688	
14,500.0	7,702.7	5,135.0	5,135.0	132.3	102.7	6.39	-4,251.6	1,092.2	3,523.6	3,458.5	65.09	54.132	
14,600.0	7,702.8	5,135.0	5,135.0	134.2	102.7	6.39	-4,251.6	1,092.2	3,594.2	3,528.3	65.84	54.588	
14,700.0	7,703.0	5,135.0	5,135.0	136.1	102.7	6.39	-4,251.6	1,092.2	3,666.1	3,599.5	66.59	55.053	
14,713.5	7,703.0	5,135.0	5,135.0	136.3	102.7	6.39	-4,251.6	1,092.2	3,675.9	3,609.2	66.69	55.117	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart B-2 (P&A - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5122-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	26.0	26.0	0.0	0.5	149.59	-2,772.5	1,627.2	3,214.8	3,214.2	0.52	6,179.880	
100.0	100.0	126.0	126.0	0.1	2.5	149.59	-2,772.5	1,627.2	3,214.8	3,212.1	2.63	1,221.148	
200.0	200.0	226.0	226.0	0.3	4.5	149.59	-2,772.5	1,627.2	3,214.8	3,209.9	4.86	661.837	
300.0	300.0	326.0	326.0	0.6	6.5	149.59	-2,772.5	1,627.2	3,214.8	3,207.7	7.08	453.928	
400.0	400.0	426.0	426.0	0.8	8.5	149.59	-2,772.5	1,627.2	3,214.8	3,205.5	9.31	345.419	
500.0	500.0	526.0	526.0	1.0	10.5	149.59	-2,772.5	1,627.2	3,214.8	3,203.2	11.53	278.778	
600.0	600.0	626.0	626.0	1.2	12.5	149.59	-2,772.5	1,627.2	3,214.8	3,201.0	13.76	233.693	
700.0	700.0	726.0	726.0	1.5	14.5	149.59	-2,772.5	1,627.2	3,214.8	3,198.8	15.98	201.160	
800.0	800.0	826.0	826.0	1.7	16.5	149.59	-2,772.5	1,627.2	3,214.8	3,196.6	18.21	176.578	
900.0	900.0	926.0	926.0	1.9	18.5	70.03	-2,772.5	1,627.2	3,214.2	3,193.8	20.42	157.416	
1,000.0	999.8	1,025.8	1,025.8	2.1	20.5	70.15	-2,772.5	1,627.2	3,212.4	3,189.8	22.62	142.011	
1,100.0	1,099.5	1,125.5	1,125.5	2.3	22.5	70.35	-2,772.5	1,627.2	3,209.4	3,184.6	24.83	129.269	
1,200.0	1,198.7	1,224.7	1,224.7	2.6	24.5	70.64	-2,772.5	1,627.2	3,205.3	3,178.3	27.04	118.525	
1,300.0	1,297.5	1,323.5	1,323.5	2.9	26.5	70.99	-2,772.5	1,627.2	3,200.1	3,170.9	29.28	109.310	
1,400.0	1,395.6	1,421.6	1,421.6	3.2	28.4	71.43	-2,772.5	1,627.2	3,193.9	3,162.4	31.53	101.292	
1,500.0	1,493.1	1,519.1	1,519.1	3.6	30.4	71.94	-2,772.5	1,627.2	3,186.7	3,152.8	33.82	94.227	
1,600.0	1,589.8	1,615.8	1,615.8	4.0	32.3	72.43	-2,772.5	1,627.2	3,178.7	3,142.5	36.16	87.913	
1,700.0	1,686.4	1,712.4	1,712.4	4.5	34.2	72.86	-2,772.5	1,627.2	3,170.8	3,132.2	38.53	82.287	
1,800.0	1,783.1	1,809.1	1,809.1	4.9	36.2	73.29	-2,772.5	1,627.2	3,163.0	3,122.1	40.93	77.282	
1,900.0	1,879.7	1,905.7	1,905.7	5.4	38.1	73.73	-2,772.5	1,627.2	3,155.5	3,112.2	43.34	72.810	
2,000.0	1,976.4	2,002.4	2,002.4	5.9	40.0	74.16	-2,772.5	1,627.2	3,148.2	3,102.4	45.76	68.795	
2,100.0	2,073.0	2,099.0	2,099.0	6.4	42.0	74.60	-2,772.5	1,627.2	3,141.1	3,092.9	48.19	65.175	
2,200.0	2,169.6	2,195.6	2,195.6	7.0	43.9	75.04	-2,772.5	1,627.2	3,134.1	3,083.5	50.63	61.897	
2,300.0	2,266.3	2,292.3	2,292.3	7.5	45.8	75.48	-2,772.5	1,627.2	3,127.4	3,074.3	53.08	58.916	
2,400.0	2,362.9	2,388.9	2,388.9	8.0	47.8	75.92	-2,772.5	1,627.2	3,120.8	3,065.3	55.53	56.197	
2,500.0	2,459.6	2,485.6	2,485.6	8.5	49.7	76.36	-2,772.5	1,627.2	3,114.5	3,056.5	57.99	53.706	
2,600.0	2,556.2	2,582.2	2,582.2	9.1	51.6	76.81	-2,772.5	1,627.2	3,108.3	3,047.8	60.45	51.417	
2,700.0	2,652.9	2,678.9	2,678.9	9.6	53.6	77.26	-2,772.5	1,627.2	3,102.3	3,039.4	62.92	49.308	
2,800.0	2,749.5	2,775.5	2,775.5	10.1	55.5	77.70	-2,772.5	1,627.2	3,096.6	3,031.2	65.39	47.358	
2,900.0	2,846.2	2,872.2	2,872.2	10.7	57.4	78.15	-2,772.5	1,627.2	3,091.0	3,023.2	67.86	45.552	
3,000.0	2,942.8	2,968.8	2,968.8	11.2	59.4	78.61	-2,772.5	1,627.2	3,085.7	3,015.4	70.33	43.873	
3,100.0	3,039.4	3,065.4	3,065.4	11.7	61.3	79.06	-2,772.5	1,627.2	3,080.5	3,007.7	72.81	42.310	
3,200.0	3,136.1	3,162.1	3,162.1	12.3	63.2	79.51	-2,772.5	1,627.2	3,075.6	3,000.3	75.29	40.852	
3,300.0	3,232.7	3,258.7	3,258.7	12.8	65.2	79.97	-2,772.5	1,627.2	3,070.9	2,993.1	77.77	39.488	
3,400.0	3,329.4	3,355.4	3,355.4	13.4	67.1	80.43	-2,772.5	1,627.2	3,066.4	2,986.1	80.25	38.210	
3,500.0	3,426.0	3,452.0	3,452.0	13.9	69.0	80.89	-2,772.5	1,627.2	3,062.1	2,979.3	82.73	37.011	
3,600.0	3,522.7	3,548.7	3,548.7	14.4	71.0	81.35	-2,772.5	1,627.2	3,058.0	2,972.7	85.22	35.884	
3,700.0	3,619.3	3,645.3	3,645.3	15.0	72.9	81.81	-2,772.5	1,627.2	3,054.1	2,966.4	87.70	34.822	
3,800.0	3,715.9	3,741.9	3,741.9	15.5	74.8	82.27	-2,772.5	1,627.2	3,050.4	2,960.2	90.19	33.822	
3,900.0	3,812.6	3,838.6	3,838.6	16.1	76.8	82.73	-2,772.5	1,627.2	3,046.9	2,954.2	92.68	32.876	
4,000.0	3,909.2	3,935.2	3,935.2	16.6	78.7	83.20	-2,772.5	1,627.2	3,043.7	2,948.5	95.17	31.982	
4,100.0	4,005.9	4,031.9	4,031.9	17.1	80.6	83.66	-2,772.5	1,627.2	3,040.6	2,943.0	97.66	31.136	
4,200.0	4,102.5	4,128.5	4,128.5	17.7	82.6	84.13	-2,772.5	1,627.2	3,037.8	2,937.6	100.14	30.334	
4,300.0	4,199.2	4,225.2	4,225.2	18.2	84.5	84.59	-2,772.5	1,627.2	3,035.2	2,932.5	102.63	29.573	
4,400.0	4,295.8	4,321.8	4,321.8	18.8	86.4	85.06	-2,772.5	1,627.2	3,032.8	2,927.7	105.12	28.850	
4,500.0	4,392.5	4,418.5	4,418.5	19.3	88.4	85.53	-2,772.5	1,627.2	3,030.6	2,923.0	107.61	28.162	
4,600.0	4,489.1	4,515.1	4,515.1	19.9	90.3	86.00	-2,772.5	1,627.2	3,028.6	2,918.5	110.10	27.507	
4,700.0	4,585.7	4,611.7	4,611.7	20.4	92.2	86.46	-2,772.5	1,627.2	3,026.9	2,914.3	112.59	26.884	
4,800.0	4,682.4	4,708.4	4,708.4	21.0	94.2	86.93	-2,772.5	1,627.2	3,025.4	2,910.3	115.08	26.289	
4,900.0	4,779.0	4,805.0	4,805.0	21.5	96.1	87.40	-2,772.5	1,627.2	3,024.0	2,906.5	117.57	25.722	
5,000.0	4,875.7	4,901.7	4,901.7	22.1	98.0	87.87	-2,772.5	1,627.2	3,022.9	2,902.9	120.06	25.180	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart B-2 (P&A - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5122-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,972.3	4,998.3	4,998.3	22.6	100.0	88.34	-2,772.5	1,627.2	3,022.1	2,899.5	122.54	24.661	
5,200.0	5,069.0	5,095.0	5,095.0	23.1	101.9	88.81	-2,772.5	1,627.2	3,021.4	2,896.4	125.03	24.166	
5,242.8	5,110.3	5,122.0	5,122.0	23.4	102.4	88.95	-2,772.5	1,627.2	3,021.2	2,895.4	125.80	24.015	
5,300.0	5,165.6	5,122.0	5,122.0	23.7	102.4	88.95	-2,772.5	1,627.2	3,021.8	2,895.7	126.12	23.960	
5,400.0	5,262.2	5,122.0	5,122.0	24.2	102.4	88.95	-2,772.5	1,627.2	3,025.3	2,898.7	126.66	23.885	
5,500.0	5,358.9	5,122.0	5,122.0	24.8	102.4	88.95	-2,772.5	1,627.2	3,032.2	2,905.0	127.21	23.836	
5,600.0	5,455.5	5,122.0	5,122.0	25.3	102.4	88.95	-2,772.5	1,627.2	3,042.3	2,914.5	127.75	23.814	SF
5,700.0	5,552.2	5,122.0	5,122.0	25.9	102.4	88.95	-2,772.5	1,627.2	3,055.6	2,927.3	128.30	23.816	
5,800.0	5,648.8	5,122.0	5,122.0	26.4	102.4	88.95	-2,772.5	1,627.2	3,072.2	2,943.3	128.85	23.844	
5,900.0	5,745.5	5,122.0	5,122.0	27.0	102.4	88.95	-2,772.5	1,627.2	3,091.9	2,962.5	129.39	23.895	
6,000.0	5,842.1	5,122.0	5,122.0	27.5	102.4	88.95	-2,772.5	1,627.2	3,114.7	2,984.7	129.94	23.970	
6,100.0	5,938.7	5,122.0	5,122.0	28.1	102.4	88.95	-2,772.5	1,627.2	3,140.5	3,010.0	130.49	24.068	
6,200.0	6,035.4	5,122.0	5,122.0	28.6	102.4	88.95	-2,772.5	1,627.2	3,169.3	3,038.2	131.03	24.187	
6,300.0	6,132.3	5,122.0	5,122.0	29.1	102.4	89.42	-2,772.5	1,627.2	3,200.9	3,069.4	131.53	24.336	
6,400.0	6,229.9	5,122.0	5,122.0	29.5	102.4	90.16	-2,772.5	1,627.2	3,235.3	3,103.4	131.90	24.528	
6,500.0	6,328.2	5,122.0	5,122.0	29.8	102.4	90.96	-2,772.5	1,627.2	3,272.5	3,140.2	132.23	24.749	
6,600.0	6,427.1	5,122.0	5,122.0	30.1	102.4	91.82	-2,772.5	1,627.2	3,312.2	3,179.7	132.50	24.997	
6,700.0	6,526.5	5,122.0	5,122.0	30.3	102.4	92.75	-2,772.5	1,627.2	3,354.3	3,221.5	132.72	25.273	
6,800.0	6,626.2	5,122.0	5,122.0	30.5	102.4	93.74	-2,772.5	1,627.2	3,398.6	3,265.7	132.89	25.574	
6,900.0	6,726.1	5,122.0	5,122.0	30.6	102.4	94.79	-2,772.5	1,627.2	3,445.1	3,312.1	133.01	25.901	
7,000.0	6,826.1	5,122.0	5,122.0	30.7	102.4	175.20	-2,772.5	1,627.2	3,493.6	3,360.5	133.09	26.250	
7,100.0	6,926.1	5,122.0	5,122.0	30.8	102.4	175.20	-2,772.5	1,627.2	3,544.2	3,411.0	133.20	26.609	
7,200.0	7,025.8	5,122.0	5,122.0	30.9	102.4	-4.49	-2,772.5	1,627.2	3,591.7	3,459.5	132.21	27.166	
7,300.0	7,123.9	5,122.0	5,122.0	31.0	102.4	-4.26	-2,772.5	1,627.2	3,629.6	3,500.6	129.01	28.136	
7,400.0	7,218.7	5,122.0	5,122.0	31.0	102.4	-4.10	-2,772.5	1,627.2	3,657.7	3,534.1	123.64	29.583	
7,500.0	7,308.6	5,122.0	5,122.0	31.0	102.4	-4.00	-2,772.5	1,627.2	3,675.7	3,559.5	116.24	31.623	
7,600.0	7,391.9	5,122.0	5,122.0	31.0	102.4	-3.96	-2,772.5	1,627.2	3,683.4	3,576.5	106.94	34.444	
7,700.0	7,467.4	5,122.0	5,122.0	31.0	102.4	-3.97	-2,772.5	1,627.2	3,680.8	3,584.9	95.95	38.361	
7,800.0	7,533.7	5,122.0	5,122.0	31.0	102.4	-4.04	-2,772.5	1,627.2	3,667.9	3,584.4	83.53	43.910	
7,900.0	7,589.7	5,122.0	5,122.0	31.1	102.4	-4.17	-2,772.5	1,627.2	3,644.8	3,574.8	70.01	52.059	
8,000.0	7,634.3	5,122.0	5,122.0	31.3	102.4	-4.36	-2,772.5	1,627.2	3,611.7	3,555.9	55.84	64.679	
8,100.0	7,667.0	5,122.0	5,122.0	31.5	102.4	-4.64	-2,772.5	1,627.2	3,568.9	3,527.2	41.69	85.606	
8,200.0	7,687.0	5,122.0	5,122.0	31.8	102.4	-5.03	-2,772.5	1,627.2	3,516.8	3,487.9	28.86	121.844	
8,300.0	7,694.0	5,122.0	5,122.0	32.2	102.4	-5.56	-2,772.5	1,627.2	3,455.9	3,433.5	22.38	154.387	
8,400.0	7,694.2	5,122.0	5,122.0	32.8	102.4	-5.58	-2,772.5	1,627.2	3,391.3	3,368.4	22.90	148.101	
8,500.0	7,694.3	5,122.0	5,122.0	33.4	102.4	-5.58	-2,772.5	1,627.2	3,328.5	3,305.0	23.41	142.189	
8,600.0	7,694.5	5,122.0	5,122.0	34.2	102.4	-5.58	-2,772.5	1,627.2	3,267.5	3,243.5	23.94	136.481	
8,700.0	7,694.6	5,122.0	5,122.0	35.0	102.4	-5.58	-2,772.5	1,627.2	3,208.5	3,184.0	24.49	130.997	
8,800.0	7,694.7	5,122.0	5,122.0	35.9	102.4	-5.58	-2,772.5	1,627.2	3,151.5	3,126.4	25.06	125.749	
8,900.0	7,694.9	5,122.0	5,122.0	37.0	102.4	-5.58	-2,772.5	1,627.2	3,096.7	3,071.1	25.65	120.746	
9,000.0	7,695.0	5,122.0	5,122.0	38.1	102.4	-5.58	-2,772.5	1,627.2	3,044.3	3,018.0	26.25	115.992	
9,100.0	7,695.2	5,122.0	5,122.0	39.2	102.4	-5.58	-2,772.5	1,627.2	2,994.2	2,967.4	26.86	111.489	
9,200.0	7,695.3	5,122.0	5,122.0	40.5	102.4	-5.58	-2,772.5	1,627.2	2,946.7	2,919.2	27.48	107.236	
9,300.0	7,695.4	5,122.0	5,122.0	41.8	102.4	-5.58	-2,772.5	1,627.2	2,901.9	2,873.8	28.11	103.230	
9,400.0	7,695.6	5,122.0	5,122.0	43.1	102.4	-5.58	-2,772.5	1,627.2	2,859.9	2,831.1	28.75	99.466	
9,500.0	7,695.7	5,122.0	5,122.0	44.5	102.4	-5.58	-2,772.5	1,627.2	2,820.7	2,791.3	29.40	95.939	
9,600.0	7,695.9	5,122.0	5,122.0	45.9	102.4	-5.58	-2,772.5	1,627.2	2,784.7	2,754.6	30.06	92.644	
9,700.0	7,696.0	5,122.0	5,122.0	47.4	102.4	-5.58	-2,772.5	1,627.2	2,751.8	2,721.0	30.72	89.573	
9,800.0	7,696.1	5,122.0	5,122.0	48.9	102.4	-5.58	-2,772.5	1,627.2	2,722.1	2,690.7	31.39	86.719	
9,900.0	7,696.3	5,122.0	5,122.0	50.4	102.4	-5.58	-2,772.5	1,627.2	2,695.9	2,663.8	32.06	84.077	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart B-2 (P&A - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5122-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,696.4	5,122.0	5,122.0	52.0	102.4	-5.58	-2,772.5	1,627.2	2,673.1	2,640.4	32.74	81.637	
10,100.0	7,696.6	5,122.0	5,122.0	53.6	102.4	-5.58	-2,772.5	1,627.2	2,653.9	2,620.5	33.43	79.392	
10,200.0	7,696.7	5,122.0	5,122.0	55.2	102.4	-5.58	-2,772.5	1,627.2	2,638.4	2,604.3	34.12	77.336	
10,300.0	7,696.8	5,122.0	5,122.0	56.8	102.4	-5.58	-2,772.5	1,627.2	2,626.6	2,591.8	34.81	75.459	
10,400.0	7,697.0	5,122.0	5,122.0	58.4	102.4	-5.58	-2,772.5	1,627.2	2,618.5	2,583.0	35.50	73.754	
10,500.0	7,697.1	5,122.0	5,122.0	60.1	102.4	-5.58	-2,772.5	1,627.2	2,614.3	2,578.1	36.20	72.214	
10,561.0	7,697.2	5,122.0	5,122.0	61.1	102.4	-5.58	-2,772.5	1,627.2	2,613.6	2,577.0	36.63	71.350	CC, ES
10,600.0	7,697.3	5,122.0	5,122.0	61.8	102.4	-5.58	-2,772.5	1,627.2	2,613.9	2,577.0	36.90	70.829	
10,700.0	7,697.4	5,122.0	5,122.0	63.5	102.4	-5.58	-2,772.5	1,627.2	2,617.3	2,579.7	37.61	69.593	
10,800.0	7,697.5	5,122.0	5,122.0	65.2	102.4	-5.58	-2,772.5	1,627.2	2,624.5	2,586.2	38.32	68.497	
10,900.0	7,697.7	5,122.0	5,122.0	66.9	102.4	-5.58	-2,772.5	1,627.2	2,635.5	2,596.5	39.02	67.534	
11,000.0	7,697.8	5,122.0	5,122.0	68.6	102.4	-5.58	-2,772.5	1,627.2	2,650.2	2,610.5	39.74	66.695	
11,100.0	7,698.0	5,122.0	5,122.0	70.3	102.4	-5.58	-2,772.5	1,627.2	2,668.6	2,628.1	40.45	65.973	
11,200.0	7,698.1	5,122.0	5,122.0	72.1	102.4	-5.58	-2,772.5	1,627.2	2,690.6	2,649.4	41.16	65.361	
11,300.0	7,698.2	5,122.0	5,122.0	73.8	102.4	-5.58	-2,772.5	1,627.2	2,716.1	2,674.2	41.88	64.850	
11,400.0	7,698.4	5,122.0	5,122.0	75.6	102.4	-5.58	-2,772.5	1,627.2	2,745.0	2,702.4	42.60	64.435	
11,500.0	7,698.5	5,122.0	5,122.0	77.4	102.4	-5.58	-2,772.5	1,627.2	2,777.2	2,733.8	43.32	64.106	
11,600.0	7,698.7	5,122.0	5,122.0	79.1	102.4	-5.58	-2,772.5	1,627.2	2,812.5	2,768.5	44.04	63.859	
11,700.0	7,698.8	5,122.0	5,122.0	80.9	102.4	-5.58	-2,772.5	1,627.2	2,851.0	2,806.2	44.77	63.687	
11,800.0	7,698.9	5,122.0	5,122.0	82.7	102.4	-5.58	-2,772.5	1,627.2	2,892.4	2,846.9	45.49	63.583	
11,900.0	7,699.1	5,122.0	5,122.0	84.5	102.4	-5.58	-2,772.5	1,627.2	2,936.6	2,890.4	46.22	63.542	
12,000.0	7,699.2	5,122.0	5,122.0	86.3	102.4	-5.58	-2,772.5	1,627.2	2,983.5	2,936.6	46.94	63.558	
12,100.0	7,699.4	5,122.0	5,122.0	88.1	102.4	-5.58	-2,772.5	1,627.2	3,033.0	2,985.4	47.67	63.626	
12,200.0	7,699.5	5,122.0	5,122.0	89.9	102.4	-5.58	-2,772.5	1,627.2	3,085.0	3,036.6	48.40	63.741	
12,300.0	7,699.6	5,122.0	5,122.0	91.7	102.4	-5.58	-2,772.5	1,627.2	3,139.3	3,090.1	49.13	63.899	
12,400.0	7,699.8	5,122.0	5,122.0	93.6	102.4	-5.58	-2,772.5	1,627.2	3,195.7	3,145.9	49.86	64.096	
12,500.0	7,699.9	5,122.0	5,122.0	95.4	102.4	-5.58	-2,772.5	1,627.2	3,254.3	3,203.7	50.59	64.327	
12,600.0	7,700.0	5,122.0	5,122.0	97.2	102.4	-5.58	-2,772.5	1,627.2	3,314.9	3,263.5	51.32	64.589	
12,700.0	7,700.2	5,122.0	5,122.0	99.0	102.4	-5.58	-2,772.5	1,627.2	3,377.3	3,325.2	52.06	64.879	
12,800.0	7,700.3	5,122.0	5,122.0	100.9	102.4	-5.58	-2,772.5	1,627.2	3,441.5	3,388.7	52.79	65.193	
12,900.0	7,700.5	5,122.0	5,122.0	102.7	102.4	-5.58	-2,772.5	1,627.2	3,507.4	3,453.9	53.52	65.530	
13,000.0	7,700.6	5,122.0	5,122.0	104.5	102.4	-5.58	-2,772.5	1,627.2	3,574.8	3,520.6	54.26	65.885	
13,100.0	7,700.7	5,122.0	5,122.0	106.4	102.4	-5.58	-2,772.5	1,627.2	3,643.8	3,588.8	54.99	66.258	
13,200.0	7,700.9	5,122.0	5,122.0	108.2	102.4	-5.58	-2,772.5	1,627.2	3,714.2	3,658.5	55.73	66.646	
13,300.0	7,701.0	5,122.0	5,122.0	110.1	102.4	-5.58	-2,772.5	1,627.2	3,785.9	3,729.4	56.47	67.046	
13,400.0	7,701.2	5,122.0	5,122.0	111.9	102.4	-5.58	-2,772.5	1,627.2	3,858.9	3,801.6	57.20	67.457	
13,500.0	7,701.3	5,122.0	5,122.0	113.8	102.4	-5.58	-2,772.5	1,627.2	3,933.0	3,875.1	57.94	67.878	
13,600.0	7,701.4	5,122.0	5,122.0	115.6	102.4	-5.58	-2,772.5	1,627.2	4,008.3	3,949.6	58.68	68.307	
13,700.0	7,701.6	5,122.0	5,122.0	117.5	102.4	-5.58	-2,772.5	1,627.2	4,084.6	4,025.2	59.42	68.742	
13,800.0	7,701.7	5,122.0	5,122.0	119.3	102.4	-5.58	-2,772.5	1,627.2	4,162.0	4,101.8	60.16	69.183	
13,900.0	7,701.9	5,122.0	5,122.0	121.2	102.4	-5.58	-2,772.5	1,627.2	4,240.3	4,179.4	60.90	69.629	
14,000.0	7,702.0	5,122.0	5,122.0	123.0	102.4	-5.58	-2,772.5	1,627.2	4,319.4	4,257.8	61.64	70.077	
14,100.0	7,702.1	5,122.0	5,122.0	124.9	102.4	-5.58	-2,772.5	1,627.2	4,399.5	4,337.1	62.38	70.529	
14,200.0	7,702.3	5,122.0	5,122.0	126.8	102.4	-5.58	-2,772.5	1,627.2	4,480.3	4,417.2	63.12	70.982	
14,300.0	7,702.4	5,122.0	5,122.0	128.6	102.4	-5.58	-2,772.5	1,627.2	4,561.9	4,498.0	63.86	71.435	
14,400.0	7,702.6	5,122.0	5,122.0	130.5	102.4	-5.58	-2,772.5	1,627.2	4,644.2	4,579.6	64.60	71.890	
14,500.0	7,702.7	5,122.0	5,122.0	132.3	102.4	-5.58	-2,772.5	1,627.2	4,727.2	4,661.9	65.34	72.344	
14,600.0	7,702.8	5,122.0	5,122.0	134.2	102.4	-5.58	-2,772.5	1,627.2	4,810.9	4,744.8	66.09	72.797	
14,700.0	7,703.0	5,122.0	5,122.0	136.1	102.4	-5.58	-2,772.5	1,627.2	4,895.1	4,828.3	66.83	73.249	
14,713.5	7,703.0	5,122.0	5,122.0	136.3	102.4	-5.58	-2,772.5	1,627.2	4,906.5	4,839.6	66.93	73.310	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	2.0	2.0	0.0	0.0	23.58	539.1	235.3	588.3				
100.0	100.0	104.3	104.3	0.1	0.2	23.57	539.0	235.2	588.1	587.8	0.33	1,780.536	
200.0	200.0	205.7	205.7	0.3	0.4	23.55	538.6	234.7	587.5	586.7	0.77	758.748	
300.0	300.0	306.7	306.7	0.6	0.6	23.57	537.9	234.6	586.8	585.6	1.21	484.837	
400.0	400.0	405.2	405.2	0.8	0.9	23.58	537.1	234.5	586.1	584.4	1.64	357.612	
484.5	484.5	486.5	486.5	1.0	1.0	23.60	536.8	234.6	585.8	583.8	1.99	293.980	
500.0	500.0	501.4	501.4	1.0	1.0	23.60	536.9	234.5	585.8	583.8	2.06	284.779	
600.0	600.0	603.2	603.1	1.2	1.3	23.59	536.9	234.5	585.9	583.4	2.49	235.183	
700.0	700.0	704.7	704.7	1.5	1.5	23.73	536.1	235.6	585.6	582.6	2.93	199.742	
800.0	800.0	806.7	806.7	1.7	1.7	23.90	534.7	237.0	584.9	581.5	3.38	173.227	
900.0	900.0	906.5	906.4	1.9	1.9	-55.71	533.4	238.1	583.1	579.3	3.80	153.467	
1,000.0	999.8	1,005.3	1,005.3	2.1	2.1	-56.18	532.7	238.0	579.5	575.3	4.21	137.574	
1,100.0	1,099.5	1,103.1	1,103.0	2.3	2.3	-57.00	532.3	237.6	574.2	569.6	4.63	123.912	
1,200.0	1,198.7	1,200.0	1,199.9	2.6	2.5	-58.17	532.5	237.1	567.6	562.5	5.07	111.875	
1,300.0	1,297.5	1,296.8	1,296.8	2.9	2.7	-59.73	533.1	236.2	559.8	554.2	5.54	100.963	
1,400.0	1,395.6	1,396.2	1,396.1	3.2	2.9	-61.72	533.9	235.2	550.7	544.7	6.06	90.882	
1,500.0	1,493.1	1,495.3	1,495.2	3.6	3.1	-64.15	534.5	233.9	540.4	533.8	6.63	81.526	
1,600.0	1,589.8	1,596.4	1,596.3	4.0	3.3	-66.92	534.3	232.3	529.1	521.8	7.27	72.815	
1,700.0	1,686.4	1,691.7	1,691.6	4.5	3.5	-69.60	534.0	230.5	518.5	510.6	7.93	65.418	
1,800.0	1,783.1	1,787.0	1,786.9	4.9	3.7	-72.24	533.6	229.9	509.3	500.7	8.61	59.172	
1,900.0	1,879.7	1,882.1	1,882.0	5.4	3.9	-74.94	533.5	229.6	501.7	492.4	9.31	53.887	
2,000.0	1,976.4	1,977.8	1,977.6	5.9	4.1	-77.74	533.6	229.1	495.4	485.4	10.03	49.389	
2,100.0	2,073.0	2,074.5	2,074.4	6.4	4.3	-80.65	533.8	228.6	490.7	479.9	10.76	45.588	
2,200.0	2,169.6	2,171.1	2,170.9	7.0	4.5	-83.59	533.8	228.0	487.1	475.6	11.50	42.376	
2,300.0	2,266.3	2,267.3	2,267.2	7.5	4.8	-86.55	534.0	227.5	485.1	472.8	12.23	39.664	
2,397.9	2,360.9	2,361.9	2,361.8	8.0	5.0	-89.51	534.1	226.8	484.4	471.5	12.94	37.427 CC	
2,400.0	2,362.9	2,364.0	2,363.9	8.0	5.0	-89.57	534.1	226.8	484.4	471.5	12.96	37.383	
2,500.0	2,459.6	2,461.8	2,461.6	8.5	5.2	-92.58	534.1	226.4	485.0	471.3	13.68	35.466 ES	
2,600.0	2,556.2	2,559.7	2,559.6	9.1	5.4	-95.54	534.0	226.4	486.8	472.4	14.38	33.857	
2,700.0	2,652.9	2,661.5	2,661.4	9.6	5.6	-98.54	533.4	227.1	489.2	474.1	15.07	32.458	
2,800.0	2,749.5	2,758.1	2,757.9	10.1	5.8	-101.33	532.2	228.1	492.3	476.5	15.74	31.271	
2,900.0	2,846.2	2,852.7	2,852.5	10.7	6.0	-104.00	531.6	229.1	497.0	480.6	16.39	30.319	
3,000.0	2,942.8	2,947.8	2,947.6	11.2	6.2	-106.62	531.3	230.2	503.2	486.2	17.03	29.559	
3,100.0	3,039.4	3,042.2	3,042.1	11.7	6.4	-109.12	531.5	231.2	511.0	493.4	17.64	28.970	
3,200.0	3,136.1	3,137.0	3,136.9	12.3	6.6	-111.50	532.4	232.5	520.3	502.1	18.24	28.526	
3,300.0	3,232.7	3,232.1	3,231.9	12.8	6.8	-113.79	533.7	233.8	530.9	512.0	18.82	28.204	
3,400.0	3,329.4	3,326.4	3,326.2	13.4	7.0	-115.98	535.2	234.7	542.8	523.4	19.39	27.995	
3,500.0	3,426.0	3,423.4	3,423.1	13.9	7.2	-118.16	536.8	235.3	555.7	535.8	19.93	27.876	
3,600.0	3,522.7	3,522.6	3,522.4	14.4	7.4	-120.44	537.5	234.8	569.4	549.0	20.45	27.840	
3,700.0	3,619.3	3,641.2	3,640.9	15.0	7.6	-123.03	536.7	235.7	582.3	561.4	20.96	27.787	
3,800.0	3,715.9	3,767.2	3,766.7	15.5	7.9	-125.64	531.4	241.1	591.0	569.6	21.44	27.568	
3,900.0	3,812.6	3,881.4	3,880.4	16.1	8.1	-127.99	523.2	249.0	596.6	574.7	21.90	27.243	
4,000.0	3,909.2	3,982.9	3,981.2	16.6	8.3	-130.15	514.0	256.2	601.6	579.3	22.33	26.940	
4,100.0	4,005.9	4,083.2	4,080.7	17.1	8.6	-132.32	503.9	263.3	606.9	584.1	22.74	26.690	
4,200.0	4,102.5	4,182.3	4,179.0	17.7	8.8	-134.39	493.9	270.9	612.6	589.4	23.13	26.481	
4,300.0	4,199.2	4,278.7	4,274.6	18.2	9.0	-136.36	484.3	278.3	619.0	595.5	23.52	26.323	
4,400.0	4,295.8	4,374.5	4,369.7	18.8	9.3	-138.20	475.7	286.1	626.4	602.5	23.90	26.212	
4,500.0	4,392.5	4,482.1	4,476.4	19.3	9.5	-140.29	464.8	294.9	633.9	609.6	24.25	26.136	
4,600.0	4,489.1	4,581.9	4,575.2	19.9	9.8	-142.23	453.8	303.8	640.9	616.3	24.60	26.055	
4,700.0	4,585.7	4,675.0	4,667.5	20.4	10.0	-143.95	444.2	312.1	649.0	624.1	24.95	26.017	
4,800.0	4,682.4	4,773.4	4,765.0	21.0	10.3	-145.58	435.6	321.3	658.0	632.7	25.31	26.003	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,779.0	4,874.4	4,865.2	21.5	10.5	-147.10	427.8	331.6	667.2	641.6	25.68	25.986	
5,000.0	4,875.7	4,973.1	4,963.1	22.1	10.8	-148.55	420.0	342.0	676.5	650.4	26.05	25.972	SF
5,100.0	4,972.3	5,068.1	5,057.2	22.6	11.0	-149.98	411.7	351.5	686.4	660.0	26.40	25.997	
5,200.0	5,069.0	5,157.7	5,146.1	23.1	11.3	-151.35	403.6	359.6	697.5	670.8	26.75	26.071	
5,300.0	5,165.6	5,244.4	5,232.2	23.7	11.5	-152.58	396.6	366.4	710.5	683.4	27.11	26.206	
5,400.0	5,262.2	5,325.9	5,313.4	24.2	11.7	-153.66	391.0	371.6	725.6	698.1	27.48	26.409	
5,500.0	5,358.9	5,403.8	5,391.0	24.8	11.9	-154.62	386.7	374.8	743.5	715.7	27.84	26.703	
5,600.0	5,455.5	5,484.9	5,472.0	25.3	12.0	-155.48	384.0	376.4	764.2	736.0	28.23	27.073	
5,700.0	5,552.2	5,573.0	5,560.1	25.9	12.2	-156.25	382.8	377.4	786.5	757.9	28.63	27.472	
5,800.0	5,648.8	5,663.6	5,650.8	26.4	12.4	-156.94	382.6	377.6	809.9	780.9	29.04	27.891	
5,900.0	5,745.5	5,760.2	5,747.4	27.0	12.6	-157.65	382.3	377.5	833.8	804.3	29.45	28.307	
6,000.0	5,842.1	5,859.7	5,846.9	27.5	12.8	-158.36	381.7	377.5	857.6	827.7	29.87	28.705	
6,100.0	5,938.7	5,956.3	5,943.4	28.1	13.0	-159.00	381.2	377.8	881.2	850.9	30.30	29.087	
6,200.0	6,035.4	6,050.8	6,038.0	28.6	13.2	-159.58	381.0	378.0	905.2	874.4	30.72	29.465	
6,300.0	6,132.3	6,146.2	6,133.3	29.1	13.4	-160.22	381.0	377.9	928.6	897.4	31.17	29.791	
6,400.0	6,229.9	6,243.0	6,230.2	29.5	13.6	-160.79	381.1	377.8	949.2	917.6	31.59	30.044	
6,500.0	6,328.2	6,341.9	6,329.1	29.8	13.8	-161.24	381.4	377.7	966.6	934.6	31.99	30.212	
6,600.0	6,427.1	6,442.7	6,429.8	30.1	14.0	-161.59	381.7	377.7	980.6	948.2	32.37	30.293	
6,700.0	6,526.5	6,541.5	6,528.6	30.3	14.2	-161.83	382.3	377.8	991.3	958.5	32.72	30.299	
6,800.0	6,626.2	6,644.7	6,631.9	30.5	14.4	-161.96	383.3	378.1	998.5	965.5	33.04	30.220	
6,900.0	6,726.1	6,747.1	6,734.3	30.6	14.6	-161.98	384.6	378.9	1,002.1	968.8	33.34	30.058	
7,000.0	6,826.1	6,847.7	6,834.9	30.7	14.8	-82.36	385.3	379.6	1,002.4	968.7	33.63	29.806	
7,100.0	6,926.1	6,950.4	6,937.5	30.8	15.0	-82.33	385.7	380.5	1,001.6	967.6	34.00	29.457	
7,158.7	6,984.7	7,009.6	6,996.8	30.9	15.1	97.82	385.8	381.1	1,001.3	967.0	34.24	29.245	
7,200.0	7,025.8	7,050.9	7,038.0	30.9	15.2	98.03	385.8	381.5	1,001.4	967.0	34.41	29.098	
7,300.0	7,123.9	7,151.3	7,138.4	31.0	15.4	98.98	385.5	382.6	1,003.1	968.3	34.81	28.817	
7,400.0	7,218.7	7,248.2	7,235.4	31.0	15.6	100.38	385.1	383.9	1,007.3	972.1	35.15	28.654	
7,500.0	7,308.6	7,331.6	7,318.7	31.0	15.8	101.85	385.6	385.0	1,015.4	980.0	35.35	28.721	
7,600.0	7,391.9	7,410.7	7,397.8	31.0	15.9	103.32	387.1	385.8	1,029.1	993.6	35.44	29.040	
7,700.0	7,467.4	7,483.0	7,470.1	31.0	16.1	104.49	389.1	386.7	1,049.3	1,013.9	35.42	29.630	
7,800.0	7,533.7	7,559.7	7,546.7	31.0	16.2	105.63	391.7	388.0	1,077.0	1,041.6	35.41	30.413	
7,900.0	7,589.7	7,628.2	7,615.1	31.1	16.4	106.06	394.0	390.3	1,112.3	1,076.8	35.50	31.333	
8,000.0	7,634.3	7,698.0	7,684.7	31.3	16.5	106.06	396.3	394.2	1,155.5	1,119.7	35.83	32.246	
8,100.0	7,667.0	7,748.9	7,735.5	31.5	16.6	104.44	397.9	398.3	1,206.7	1,170.2	36.52	33.040	
8,200.0	7,687.0	7,773.5	7,760.0	31.8	16.7	100.48	398.7	400.6	1,265.6	1,228.1	37.53	33.726	
8,300.0	7,694.0	7,777.1	7,763.6	32.2	16.7	94.26	398.8	401.0	1,331.0	1,292.6	38.43	34.632	
8,400.0	7,694.2	7,774.1	7,760.6	32.8	16.7	93.87	398.7	400.7	1,401.0	1,361.6	39.39	35.569	
8,500.0	7,694.3	7,768.0	7,754.5	33.4	16.7	93.51	398.5	400.1	1,474.5	1,434.1	40.45	36.455	
8,600.0	7,694.5	7,768.0	7,754.5	34.2	16.7	93.51	398.5	400.1	1,551.0	1,509.3	41.64	37.249	
8,700.0	7,694.6	7,763.2	7,749.7	35.0	16.7	93.23	398.4	399.6	1,629.9	1,587.1	42.89	38.006	
8,800.0	7,694.7	7,757.8	7,744.4	35.9	16.7	92.92	398.2	399.1	1,711.1	1,666.9	44.20	38.709	
8,900.0	7,694.9	7,752.5	7,739.0	37.0	16.6	92.60	398.0	398.6	1,794.2	1,748.6	45.59	39.359	
9,000.0	7,695.0	7,747.1	7,733.7	38.1	16.6	92.29	397.9	398.1	1,878.9	1,831.9	47.02	39.959	
9,100.0	7,695.2	7,741.7	7,728.3	39.2	16.6	91.97	397.7	397.6	1,965.0	1,916.5	48.50	40.514	
9,200.0	7,695.3	7,736.3	7,722.9	40.5	16.6	91.65	397.5	397.2	2,052.4	2,002.4	50.02	41.029	
9,300.0	7,695.4	7,730.9	7,717.5	41.8	16.6	91.34	397.3	396.7	2,140.9	2,089.3	51.58	41.506	
9,400.0	7,695.6	7,725.4	7,712.1	43.1	16.6	91.02	397.2	396.2	2,230.4	2,177.2	53.17	41.950	
9,500.0	7,695.7	7,720.0	7,706.7	44.5	16.6	90.70	397.0	395.8	2,320.7	2,265.9	54.78	42.363	
9,600.0	7,695.9	7,714.5	7,701.3	45.9	16.6	90.38	396.8	395.4	2,411.7	2,355.3	56.42	42.749	
9,700.0	7,696.0	7,709.1	7,695.8	47.4	16.6	90.06	396.6	395.0	2,503.5	2,445.4	58.07	43.110	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,800.0	7,696.1	7,703.6	7,690.4	48.9	16.5	89.74	396.5	394.6	2,595.8	2,536.1	59.75	43.448	
9,900.0	7,696.3	7,698.1	7,684.9	50.4	16.5	89.42	396.3	394.2	2,688.7	2,627.3	61.43	43.766	
10,000.0	7,696.4	7,692.6	7,679.4	52.0	16.5	89.10	396.1	393.8	2,782.1	2,719.0	63.13	44.066	
10,100.0	7,696.6	7,687.1	7,673.9	53.6	16.5	88.78	395.9	393.4	2,875.9	2,811.1	64.85	44.349	
10,200.0	7,696.7	7,681.5	7,668.4	55.2	16.5	88.46	395.7	393.1	2,970.1	2,903.5	66.57	44.617	
10,300.0	7,696.8	7,676.0	7,662.8	56.8	16.5	88.13	395.6	392.7	3,064.7	2,996.4	68.30	44.872	
10,400.0	7,697.0	7,670.4	7,657.3	58.4	16.5	87.81	395.4	392.4	3,159.6	3,089.5	70.04	45.113	
10,500.0	7,697.1	7,664.9	7,651.7	60.1	16.5	87.49	395.2	392.1	3,254.8	3,183.0	71.78	45.343	
10,600.0	7,697.3	7,659.3	7,646.2	61.8	16.4	87.16	395.0	391.8	3,350.3	3,276.7	73.53	45.563	
10,700.0	7,697.4	7,653.7	7,640.6	63.5	16.4	86.84	394.8	391.5	3,446.0	3,370.7	75.28	45.773	
10,800.0	7,697.5	7,648.1	7,635.0	65.2	16.4	86.51	394.6	391.2	3,541.9	3,464.9	77.04	45.975	
10,900.0	7,697.7	7,642.5	7,629.4	66.9	16.4	86.19	394.4	391.0	3,638.1	3,559.3	78.80	46.168	
11,000.0	7,697.8	7,636.8	7,623.7	68.6	16.4	85.86	394.3	390.7	3,734.5	3,653.9	80.56	46.355	
11,100.0	7,698.0	7,632.1	7,619.1	70.3	16.4	85.59	394.1	390.5	3,831.0	3,748.7	82.34	46.528	
11,200.0	7,698.1	7,627.9	7,614.8	72.1	16.4	85.35	394.0	390.3	3,927.7	3,843.6	84.12	46.692	
11,300.0	7,698.2	7,623.6	7,610.5	73.8	16.4	85.10	393.8	390.2	4,024.6	3,938.7	85.91	46.849	
11,400.0	7,698.4	7,619.3	7,606.3	75.6	16.4	84.86	393.7	390.0	4,121.6	4,033.9	87.69	47.002	
11,500.0	7,698.5	7,615.1	7,602.0	77.4	16.4	84.61	393.5	389.8	4,218.8	4,129.3	89.48	47.149	
11,600.0	7,698.7	7,610.7	7,597.7	79.1	16.3	84.36	393.4	389.7	4,316.1	4,224.8	91.27	47.291	
11,700.0	7,698.8	7,606.4	7,593.4	80.9	16.3	84.11	393.3	389.5	4,413.5	4,320.4	93.05	47.429	
11,800.0	7,698.9	7,602.1	7,589.1	82.7	16.3	83.87	393.1	389.3	4,511.0	4,416.1	94.84	47.564	
11,900.0	7,699.1	7,597.8	7,584.7	84.5	16.3	83.62	393.0	389.2	4,608.6	4,512.0	96.63	47.694	
12,000.0	7,699.2	7,593.4	7,580.4	86.3	16.3	83.37	392.8	389.0	4,706.3	4,607.9	98.42	47.821	
12,100.0	7,699.4	7,589.1	7,576.0	88.1	16.3	83.12	392.7	388.9	4,804.1	4,703.9	100.20	47.944	
12,200.0	7,699.5	7,584.7	7,571.7	89.9	16.3	82.87	392.5	388.8	4,902.0	4,800.0	101.99	48.065	
12,300.0	7,699.6	7,580.3	7,567.3	91.7	16.3	82.62	392.4	388.6	5,000.0	4,896.2	103.77	48.183	
12,400.0	7,699.8	7,575.9	7,562.9	93.6	16.3	82.37	392.2	388.5	5,098.0	4,992.5	105.55	48.299	
12,500.0	7,699.9	7,571.5	7,558.5	95.4	16.3	82.12	392.1	388.4	5,196.1	5,088.8	107.33	48.412	
12,600.0	7,700.0	7,567.1	7,554.1	97.2	16.3	81.87	391.9	388.2	5,294.3	5,185.2	109.11	48.523	
12,700.0	7,700.2	7,562.7	7,549.7	99.0	16.2	81.62	391.8	388.1	5,392.6	5,281.7	110.89	48.631	
12,800.0	7,700.3	7,558.2	7,545.2	100.9	16.2	81.37	391.6	388.0	5,490.9	5,378.2	112.66	48.738	
12,900.0	7,700.5	7,553.8	7,540.8	102.7	16.2	81.11	391.5	387.9	5,589.3	5,474.8	114.43	48.844	
13,000.0	7,700.6	7,549.3	7,536.3	104.5	16.2	80.86	391.3	387.8	5,687.7	5,571.5	116.20	48.947	
13,100.0	7,700.7	7,544.8	7,531.8	106.4	16.2	80.61	391.2	387.7	5,786.2	5,668.2	117.97	49.050	
13,200.0	7,700.9	7,540.3	7,527.3	108.2	16.2	80.36	391.0	387.6	5,884.7	5,765.0	119.73	49.151	
13,300.0	7,701.0	7,535.8	7,522.8	110.1	16.2	80.10	390.9	387.5	5,983.2	5,861.8	121.49	49.250	
13,400.0	7,701.2	7,531.3	7,518.3	111.9	16.2	79.85	390.7	387.4	6,081.9	5,958.6	123.24	49.349	
13,500.0	7,701.3	7,526.8	7,513.8	113.8	16.2	79.60	390.6	387.3	6,180.5	6,055.5	124.99	49.446	
13,600.0	7,701.4	7,522.2	7,509.3	115.6	16.2	79.34	390.4	387.2	6,279.2	6,152.5	126.74	49.543	
13,700.0	7,701.6	7,517.7	7,504.7	117.5	16.2	79.09	390.3	387.1	6,378.0	6,249.5	128.49	49.639	
13,800.0	7,701.7	7,513.1	7,500.1	119.3	16.1	78.83	390.1	387.1	6,476.7	6,346.5	130.23	49.734	
13,900.0	7,701.9	7,508.5	7,495.6	121.2	16.1	78.58	389.9	387.0	6,575.5	6,443.6	131.96	49.828	
14,000.0	7,702.0	7,503.9	7,491.0	123.0	16.1	78.32	389.8	386.9	6,674.4	6,540.7	133.70	49.922	
14,100.0	7,702.1	7,500.0	7,487.0	124.9	16.1	78.10	389.7	386.9	6,773.2	6,637.8	135.44	50.008	
14,200.0	7,702.3	7,500.0	7,487.0	126.8	16.1	78.10	389.7	386.9	6,872.1	6,734.8	137.30	50.051	
14,300.0	7,702.4	7,500.0	7,487.0	128.6	16.1	78.10	389.7	386.9	6,971.1	6,831.9	139.16	50.093	
14,400.0	7,702.6	7,500.0	7,487.0	130.5	16.1	78.10	389.7	386.9	7,070.0	6,929.0	141.02	50.134	
14,500.0	7,702.7	7,500.0	7,487.0	132.3	16.1	78.10	389.7	386.9	7,169.0	7,026.1	142.88	50.174	
14,600.0	7,702.8	7,500.0	7,487.0	134.2	16.1	78.10	389.7	386.9	7,268.1	7,123.3	144.74	50.213	
14,700.0	7,703.0	7,500.0	7,487.0	136.1	16.1	78.10	389.7	386.9	7,367.1	7,220.5	146.61	50.251	
14,713.5	7,703.0	7,500.0	7,487.0	136.3	16.1	78.10	389.7	386.9	7,380.5	7,233.6	146.86	50.256	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-143.94	-342.4	-249.3	423.6				
100.0	100.0	95.9	95.9	0.1	0.1	-143.97	-342.6	-249.2	423.7	423.5	0.22	1,891.188	
200.0	200.0	194.7	194.7	0.3	0.2	-144.05	-343.3	-249.0	424.1	423.5	0.56	752.331	
300.0	300.0	293.5	293.5	0.6	0.4	-144.19	-344.5	-248.6	424.8	423.9	0.90	470.188	
400.0	400.0	392.3	392.3	0.8	0.5	-144.38	-346.1	-248.0	425.8	424.5	1.24	342.457	
500.0	500.0	491.1	491.1	1.0	0.6	-144.62	-348.1	-247.2	427.0	425.4	1.58	269.725	
600.0	600.0	589.9	589.8	1.2	0.7	-144.92	-350.7	-246.2	428.5	426.6	1.92	222.842	
700.0	700.0	688.6	688.5	1.5	0.9	-145.27	-353.6	-245.1	430.4	428.1	2.26	190.165	
800.0	800.0	787.3	787.1	1.7	1.0	-145.67	-357.1	-243.8	432.5	429.9	2.60	166.134	
900.0	900.0	885.9	885.6	1.9	1.1	134.39	-361.0	-242.4	436.2	433.2	2.98	146.512	
1,000.0	999.8	984.5	984.1	2.1	1.2	134.28	-365.4	-240.7	442.6	439.3	3.31	133.786	
1,100.0	1,099.5	1,082.7	1,082.2	2.3	1.4	134.40	-370.2	-239.0	451.7	448.1	3.65	123.721	
1,200.0	1,198.7	1,181.3	1,180.7	2.6	1.6	134.76	-375.3	-237.1	463.5	459.4	4.08	113.587	
1,300.0	1,297.5	1,279.6	1,278.8	2.9	1.8	135.38	-380.3	-235.6	477.9	473.4	4.55	105.073	
1,400.0	1,395.6	1,377.8	1,376.8	3.2	2.0	136.25	-385.1	-234.4	495.0	489.9	5.03	98.375	
1,500.0	1,493.1	1,477.0	1,476.0	3.6	2.2	137.33	-389.7	-233.3	514.5	509.0	5.52	93.179	
1,600.0	1,589.8	1,575.7	1,574.5	4.0	2.4	138.70	-393.7	-232.2	536.1	530.1	6.04	88.771	
1,700.0	1,686.4	1,673.0	1,671.7	4.5	2.6	140.12	-397.3	-231.3	558.1	551.5	6.57	84.946	
1,800.0	1,783.1	1,769.6	1,768.3	4.9	2.8	141.47	-400.5	-230.6	580.3	573.2	7.10	81.715	
1,900.0	1,879.7	1,866.0	1,864.6	5.4	3.0	142.76	-403.5	-230.2	602.8	595.2	7.63	78.981	
2,000.0	1,976.4	1,962.3	1,961.0	5.9	3.2	143.97	-406.4	-230.1	625.7	617.6	8.17	76.588	
2,100.0	2,073.0	2,071.2	2,069.8	6.4	3.4	145.27	-408.6	-229.2	647.7	639.0	8.72	74.290	
2,200.0	2,169.6	2,186.9	2,185.3	7.0	3.7	146.13	-412.2	-222.8	667.3	658.0	9.31	71.649	
2,300.0	2,266.3	2,286.9	2,284.8	7.5	3.9	146.55	-417.0	-214.2	685.9	676.0	9.91	69.220	
2,400.0	2,362.9	2,399.2	2,396.4	8.0	4.2	146.95	-422.3	-203.6	704.0	693.5	10.54	66.769	
2,500.0	2,459.6	2,522.8	2,518.7	8.5	4.5	147.08	-428.0	-186.6	718.9	707.7	11.25	63.929	
2,600.0	2,556.2	2,654.8	2,648.2	9.1	5.0	146.84	-434.1	-161.7	730.1	718.1	12.04	60.641	
2,700.0	2,652.9	2,789.1	2,779.0	9.6	5.4	146.62	-435.6	-131.6	736.1	723.2	12.86	57.250	
2,800.0	2,749.5	2,901.9	2,888.4	10.1	5.8	146.45	-434.4	-104.1	739.2	725.6	13.63	54.248	
2,900.0	2,846.2	3,010.8	2,993.4	10.7	6.3	146.18	-433.0	-75.4	740.7	726.3	14.42	51.354	
3,000.0	2,942.8	3,135.2	3,112.3	11.2	6.9	145.61	-432.2	-38.8	740.5	725.1	15.35	48.226	
3,100.0	3,039.4	3,230.4	3,203.0	11.7	7.3	145.20	-430.3	-9.8	738.5	722.3	16.15	45.722	
3,200.0	3,136.1	3,330.0	3,298.1	12.3	7.8	144.84	-427.8	19.6	737.0	720.0	16.95	43.474	
3,300.0	3,232.7	3,439.4	3,402.5	12.8	8.3	144.46	-424.7	52.1	735.0	717.2	17.83	41.228	
3,400.0	3,329.4	3,541.3	3,499.5	13.4	8.9	144.05	-421.5	83.4	732.1	713.4	18.70	39.152	
3,500.0	3,426.0	3,644.0	3,596.9	13.9	9.4	143.58	-418.5	115.7	728.8	709.2	19.61	37.174	
3,600.0	3,522.7	3,746.5	3,694.1	14.4	10.0	143.15	-414.8	147.8	725.3	704.8	20.51	35.370	
3,700.0	3,619.3	3,839.0	3,782.2	15.0	10.5	142.84	-410.9	176.0	721.9	700.6	21.34	33.834	
3,791.0	3,707.2	3,910.2	3,850.3	15.5	10.9	142.61	-408.7	196.7	720.6	698.6	22.03	32.712	
3,800.0	3,715.9	3,916.8	3,856.6	15.5	10.9	142.59	-408.6	198.6	720.6	698.5	22.10	32.613	
3,900.0	3,812.6	4,003.1	3,939.5	16.1	11.4	142.20	-409.3	222.7	722.6	699.7	22.94	31.499	
4,000.0	3,909.2	4,113.4	4,044.8	16.6	12.0	141.55	-410.9	255.5	724.1	700.1	23.98	30.198	
4,100.0	4,005.9	4,204.1	4,131.6	17.1	12.5	141.10	-411.5	281.6	725.7	700.8	24.88	29.170	
4,200.0	4,102.5	4,308.9	4,232.1	17.7	13.1	140.61	-412.4	311.3	727.9	702.0	25.86	28.141	
4,300.0	4,199.2	4,444.0	4,361.0	18.2	13.8	139.98	-410.8	351.7	727.4	700.4	27.05	26.896	
4,400.0	4,295.8	4,551.8	4,462.8	18.8	14.5	139.41	-407.1	386.9	723.4	695.3	28.12	25.728	
4,500.0	4,392.5	4,640.7	4,546.9	19.3	15.1	138.93	-404.4	415.8	719.9	690.8	29.07	24.764	
4,600.0	4,489.1	4,740.5	4,641.6	19.9	15.7	138.45	-401.4	447.1	717.2	687.2	30.08	23.844	
4,692.9	4,578.8	4,815.3	4,712.7	20.4	16.1	138.09	-399.8	470.0	715.8	684.9	30.91	23.156	
4,700.0	4,585.7	4,820.6	4,717.8	20.4	16.1	138.07	-399.8	471.6	715.9	684.9	30.97	23.111	
4,800.0	4,682.4	4,923.2	4,815.8	21.0	16.7	137.59	-399.2	501.7	716.5	684.5	32.01	22.383	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,779.0	5,051.4	4,937.0	21.5	17.5	136.76	-397.4	543.6	714.4	681.1	33.34	21.429	
5,000.0	4,875.7	5,152.0	5,031.3	22.1	18.2	136.00	-395.0	578.6	710.3	675.7	34.53	20.572	
5,100.0	4,972.3	5,240.1	5,114.1	22.6	18.8	135.35	-393.5	608.6	707.3	671.7	35.61	19.864	
5,200.0	5,069.0	5,329.8	5,198.9	23.1	19.3	134.76	-392.3	637.8	705.6	669.0	36.67	19.241	
5,231.0	5,098.9	5,356.1	5,223.9	23.3	19.5	134.63	-392.0	645.8	705.5	668.5	36.98	19.078	
5,300.0	5,165.6	5,418.9	5,284.0	23.7	19.9	134.34	-391.4	664.3	706.0	668.3	37.67	18.740	
5,400.0	5,262.2	5,550.5	5,409.1	24.2	20.7	133.70	-388.2	704.9	704.6	665.6	38.98	18.077	
5,500.0	5,358.9	5,656.0	5,508.6	24.8	21.3	133.20	-381.9	739.4	699.0	658.9	40.12	17.425	
5,600.0	5,455.5	5,745.5	5,593.7	25.3	21.9	132.90	-376.8	766.8	695.2	654.1	41.09	16.918	
5,700.0	5,552.2	5,850.3	5,693.1	25.9	22.5	132.45	-372.1	799.4	692.0	649.8	42.21	16.393	
5,800.0	5,648.8	5,940.6	5,779.0	26.4	23.1	132.07	-368.0	827.3	689.0	645.7	43.24	15.934	
5,900.0	5,745.5	6,034.6	5,868.7	27.0	23.6	131.76	-364.4	854.9	687.4	643.2	44.25	15.536	
6,000.0	5,842.1	6,145.0	5,974.0	27.5	24.2	131.38	-359.5	887.8	685.0	639.6	45.38	15.097	
6,100.0	5,938.7	6,232.1	6,057.4	28.1	24.7	131.19	-355.1	912.5	683.0	636.7	46.30	14.752	
6,133.4	5,971.0	6,259.2	6,083.4	28.2	24.9	131.13	-354.1	920.1	682.9	636.3	46.60	14.653	
6,200.0	6,035.4	6,318.1	6,140.0	28.6	25.2	130.97	-352.7	936.3	683.3	636.1	47.24	14.465	
6,300.0	6,132.3	6,408.8	6,227.2	29.1	25.7	130.68	-351.4	961.0	684.5	636.3	48.20	14.202	
6,400.0	6,229.9	6,501.8	6,317.1	29.5	26.2	130.25	-350.5	985.1	684.7	635.6	49.10	13.945	
6,500.0	6,328.2	6,604.2	6,416.7	29.8	26.7	129.76	-348.7	1,008.7	683.4	633.4	49.97	13.675	
6,600.0	6,427.1	6,689.3	6,500.2	30.1	27.0	129.46	-345.9	1,024.8	680.6	630.0	50.60	13.450	
6,700.0	6,526.5	6,775.0	6,584.9	30.3	27.3	129.21	-343.0	1,037.7	677.5	626.3	51.13	13.251	
6,800.0	6,626.2	6,868.1	6,677.2	30.5	27.5	128.92	-340.1	1,048.8	673.9	622.3	51.60	13.060	
6,900.0	6,726.1	6,960.9	6,769.5	30.6	27.8	128.53	-337.2	1,058.1	669.1	617.0	52.04	12.856	
7,000.0	6,826.1	7,050.6	6,858.9	30.7	28.0	-152.29	-334.5	1,065.0	663.5	611.0	52.44	12.651	
7,100.0	6,926.1	7,146.9	6,954.9	30.8	28.1	-152.68	-332.4	1,071.2	658.5	605.6	52.88	12.454	
7,200.0	7,025.8	7,246.2	7,054.1	30.9	28.3	27.50	-330.2	1,077.5	648.3	595.8	52.52	12.346	
7,300.0	7,123.9	7,343.7	7,151.4	31.0	28.5	28.67	-328.1	1,083.7	626.8	575.7	51.09	12.269	
7,400.0	7,218.7	7,437.6	7,245.1	31.0	28.7	31.00	-326.1	1,089.6	594.2	545.6	48.62	12.222	
7,500.0	7,308.6	7,526.3	7,333.6	31.0	28.9	34.82	-324.1	1,095.2	551.7	506.5	45.22	12.201	
7,600.0	7,391.9	7,608.3	7,415.4	31.0	29.1	40.63	-322.4	1,100.4	500.5	459.4	41.16	12.162	
7,700.0	7,467.4	7,682.2	7,489.1	31.0	29.2	49.02	-320.8	1,105.1	443.0	405.8	37.20	11.909	
7,800.0	7,533.7	7,746.7	7,553.5	31.0	29.3	60.22	-319.4	1,109.2	382.3	347.5	34.78	10.993	
7,900.0	7,589.7	7,800.8	7,607.4	31.1	29.4	73.15	-318.2	1,112.6	324.0	289.1	34.96	9.270	
8,000.0	7,634.3	7,843.4	7,649.9	31.3	29.5	85.08	-317.3	1,115.3	277.6	241.0	36.59	7.587	
8,100.0	7,667.0	7,873.9	7,680.3	31.5	29.6	93.16	-316.6	1,117.3	256.4	218.4	38.01	6.746	
8,110.8	7,669.7	7,876.4	7,682.9	31.5	29.6	93.73	-316.5	1,117.4	256.2	218.0	38.14	6.717	CC, ES, SF
8,200.0	7,687.0	7,891.7	7,698.1	31.8	29.6	95.95	-316.2	1,118.4	271.1	232.1	39.01	6.951	
8,300.0	7,694.0	7,896.6	7,703.0	32.2	29.6	92.92	-316.1	1,118.7	318.8	279.1	39.69	8.032	
8,400.0	7,694.2	7,894.6	7,701.0	32.8	29.6	92.30	-316.1	1,118.6	387.3	346.7	40.59	9.540	
8,500.0	7,694.3	7,892.5	7,699.0	33.4	29.6	91.84	-316.2	1,118.4	467.2	425.6	41.63	11.224	
8,600.0	7,694.5	7,890.5	7,696.9	34.2	29.6	91.38	-316.2	1,118.3	553.8	511.0	42.76	12.951	
8,700.0	7,694.6	7,888.5	7,694.9	35.0	29.6	90.93	-316.3	1,118.2	644.2	600.2	43.97	14.650	
8,800.0	7,694.7	7,886.4	7,692.9	35.9	29.6	90.47	-316.3	1,118.1	737.1	691.8	45.26	16.287	
8,900.0	7,694.9	7,884.4	7,690.8	37.0	29.6	90.02	-316.4	1,117.9	831.6	785.0	46.60	17.845	
9,000.0	7,695.0	7,882.4	7,688.8	38.1	29.6	89.56	-316.4	1,117.8	927.3	879.3	48.00	19.318	
9,100.0	7,695.2	7,880.3	7,686.8	39.2	29.6	89.10	-316.5	1,117.7	1,023.8	974.4	49.45	20.705	
9,200.0	7,695.3	7,878.3	7,684.8	40.5	29.6	88.65	-316.5	1,117.5	1,120.9	1,070.0	50.93	22.008	
9,300.0	7,695.4	7,876.3	7,682.7	41.8	29.6	88.20	-316.5	1,117.4	1,218.5	1,166.1	52.45	23.232	
9,400.0	7,695.6	7,874.2	7,680.7	43.1	29.6	87.74	-316.6	1,117.3	1,316.4	1,262.4	53.99	24.381	
9,500.0	7,695.7	7,872.2	7,678.7	44.5	29.6	87.29	-316.6	1,117.2	1,414.7	1,359.1	55.56	25.460	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,600.0	7,695.9	7,870.2	7,676.6	45.9	29.6	86.84	-316.7	1,117.0	1,513.1	1,456.0	57.15	26.475	
9,700.0	7,696.0	7,868.1	7,674.6	47.4	29.6	86.39	-316.7	1,116.9	1,611.8	1,553.0	58.76	27.429	
9,800.0	7,696.1	7,866.1	7,672.6	48.9	29.6	85.94	-316.8	1,116.8	1,710.6	1,650.2	60.38	28.329	
9,900.0	7,696.3	7,864.1	7,670.6	50.4	29.6	85.49	-316.8	1,116.6	1,809.5	1,747.5	62.02	29.177	
10,000.0	7,696.4	7,862.0	7,668.5	52.0	29.6	85.04	-316.9	1,116.5	1,908.5	1,844.9	63.66	29.979	
10,100.0	7,696.6	7,860.0	7,666.5	53.6	29.6	84.60	-316.9	1,116.4	2,007.6	1,942.3	65.31	30.738	
10,200.0	7,696.7	7,858.0	7,664.5	55.2	29.6	84.15	-316.9	1,116.3	2,106.9	2,039.9	66.97	31.458	
10,300.0	7,696.8	7,855.9	7,662.4	56.8	29.6	83.71	-317.0	1,116.1	2,206.1	2,137.5	68.64	32.141	
10,400.0	7,697.0	7,853.9	7,660.4	58.4	29.6	83.26	-317.0	1,116.0	2,305.5	2,235.2	70.31	32.791	
10,500.0	7,697.1	7,851.9	7,658.4	60.1	29.6	82.82	-317.1	1,115.9	2,404.9	2,332.9	71.98	33.410	
10,600.0	7,697.3	7,849.8	7,656.4	61.8	29.5	82.38	-317.1	1,115.7	2,504.3	2,430.7	73.66	34.001	
10,700.0	7,697.4	7,847.8	7,654.3	63.5	29.5	81.94	-317.2	1,115.6	2,603.8	2,528.5	75.33	34.565	
10,800.0	7,697.5	7,845.8	7,652.3	65.2	29.5	81.50	-317.2	1,115.5	2,703.3	2,626.3	77.01	35.105	
10,900.0	7,697.7	7,843.7	7,650.3	66.9	29.5	81.07	-317.3	1,115.3	2,802.9	2,724.2	78.68	35.623	
11,000.0	7,697.8	7,841.7	7,648.2	68.6	29.5	80.63	-317.3	1,115.2	2,902.4	2,822.1	80.35	36.121	
11,100.0	7,698.0	7,839.7	7,646.2	70.3	29.5	80.20	-317.3	1,115.1	3,002.0	2,920.0	82.03	36.599	
11,200.0	7,698.1	7,837.6	7,644.2	72.1	29.5	79.77	-317.4	1,115.0	3,101.7	3,018.0	83.69	37.059	
11,300.0	7,698.2	7,835.6	7,642.2	73.8	29.5	79.34	-317.4	1,114.8	3,201.3	3,116.0	85.36	37.504	
11,400.0	7,698.4	7,833.6	7,640.1	75.6	29.5	78.91	-317.5	1,114.7	3,301.0	3,214.0	87.02	37.933	
11,500.0	7,698.5	7,831.5	7,638.1	77.4	29.5	78.48	-317.5	1,114.6	3,400.7	3,312.0	88.68	38.347	
11,600.0	7,698.7	7,829.5	7,636.1	79.1	29.5	78.05	-317.6	1,114.4	3,500.4	3,410.1	90.33	38.749	
11,700.0	7,698.8	7,827.5	7,634.0	80.9	29.5	77.63	-317.6	1,114.3	3,600.1	3,508.1	91.98	39.139	
11,800.0	7,698.9	7,825.4	7,632.0	82.7	29.5	77.21	-317.7	1,114.2	3,699.9	3,606.2	93.63	39.517	
11,900.0	7,699.1	7,823.4	7,630.0	84.5	29.5	76.79	-317.7	1,114.1	3,799.6	3,704.3	95.27	39.885	
12,000.0	7,699.2	7,821.4	7,628.0	86.3	29.5	76.37	-317.7	1,113.9	3,899.4	3,802.5	96.90	40.242	
12,100.0	7,699.4	7,819.3	7,625.9	88.1	29.5	75.96	-317.8	1,113.8	3,999.1	3,900.6	98.52	40.591	
12,200.0	7,699.5	7,817.3	7,623.9	89.9	29.5	75.54	-317.8	1,113.7	4,098.9	3,998.8	100.14	40.931	
12,300.0	7,699.6	7,815.3	7,621.9	91.7	29.5	75.13	-317.9	1,113.5	4,198.7	4,097.0	101.75	41.263	
12,400.0	7,699.8	7,813.2	7,619.8	93.6	29.5	74.72	-317.9	1,113.4	4,298.5	4,195.1	103.36	41.588	
12,500.0	7,699.9	7,811.2	7,617.8	95.4	29.5	74.31	-318.0	1,113.3	4,398.3	4,293.4	104.96	41.906	
12,600.0	7,700.0	7,809.2	7,615.8	97.2	29.5	73.90	-318.0	1,113.2	4,498.1	4,391.6	106.55	42.217	
12,700.0	7,700.2	7,807.1	7,613.8	99.0	29.5	73.50	-318.0	1,113.0	4,598.0	4,489.8	108.13	42.522	
12,800.0	7,700.3	7,805.1	7,611.7	100.9	29.5	73.10	-318.1	1,112.9	4,697.8	4,588.1	109.71	42.821	
12,900.0	7,700.5	7,803.1	7,609.7	102.7	29.5	72.70	-318.1	1,112.8	4,797.6	4,686.3	111.27	43.115	
13,000.0	7,700.6	7,801.0	7,607.7	104.5	29.4	72.30	-318.2	1,112.6	4,897.5	4,784.6	112.83	43.404	
13,100.0	7,700.7	7,799.0	7,605.6	106.4	29.4	71.90	-318.2	1,112.5	4,997.3	4,882.9	114.38	43.689	
13,200.0	7,700.9	7,797.0	7,603.6	108.2	29.4	71.51	-318.3	1,112.4	5,097.2	4,981.2	115.93	43.969	
13,300.0	7,701.0	7,794.9	7,601.6	110.1	29.4	71.12	-318.3	1,112.3	5,197.0	5,079.6	117.46	44.245	
13,400.0	7,701.2	7,792.9	7,599.6	111.9	29.4	70.73	-318.4	1,112.1	5,296.9	5,177.9	118.99	44.517	
13,500.0	7,701.3	7,790.9	7,597.5	113.8	29.4	70.34	-318.4	1,112.0	5,396.7	5,276.2	120.50	44.785	
13,600.0	7,701.4	7,788.8	7,595.5	115.6	29.4	69.96	-318.4	1,111.9	5,496.6	5,374.6	122.01	45.050	
13,700.0	7,701.6	7,786.8	7,593.5	117.5	29.4	69.57	-318.5	1,111.7	5,596.5	5,473.0	123.51	45.312	
13,800.0	7,701.7	7,784.8	7,591.4	119.3	29.4	69.19	-318.5	1,111.6	5,696.4	5,571.4	125.00	45.571	
13,900.0	7,701.9	7,782.7	7,589.4	121.2	29.4	68.82	-318.6	1,111.5	5,796.2	5,669.8	126.48	45.828	
14,000.0	7,702.0	7,780.7	7,587.4	123.0	29.4	68.44	-318.6	1,111.4	5,896.1	5,768.2	127.95	46.081	
14,100.0	7,702.1	7,778.7	7,585.4	124.9	29.4	68.07	-318.7	1,111.2	5,996.0	5,866.6	129.41	46.332	
14,200.0	7,702.3	7,776.6	7,583.3	126.8	29.4	67.70	-318.7	1,111.1	6,095.9	5,965.0	130.87	46.581	
14,300.0	7,702.4	7,774.6	7,581.3	128.6	29.4	67.33	-318.8	1,111.0	6,195.8	6,063.5	132.31	46.828	
14,400.0	7,702.6	7,772.6	7,579.3	130.5	29.4	66.96	-318.8	1,110.8	6,295.7	6,162.0	133.75	47.072	
14,500.0	7,702.7	7,770.5	7,577.2	132.3	29.4	66.60	-318.8	1,110.7	6,395.6	6,260.4	135.17	47.315	
14,600.0	7,702.8	7,768.5	7,575.2	134.2	29.4	66.23	-318.9	1,110.6	6,495.5	6,358.9	136.59	47.556	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Jacobucci 43-32 (Exist.) - Wellbore #1 - Wellbore #1

Survey Program: 1105-MWD

Offset Site Error: 0.0 ft

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
14,700.0	7,703.0	7,766.5	7,573.2	136.1	29.4	65.87	-318.9	1,110.5	6,595.4	6,457.4	137.99	47.795	
14,713.5	7,703.0	7,766.2	7,572.9	136.3	29.4	65.83	-318.9	1,110.4	6,608.9	6,470.7	138.18	47.827	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Mark Degenhart 10 (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5160-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	62.0	62.0	0.0	1.2	164.80	-5,442.8	1,478.9	5,640.1	5,638.9	1.24	4,547.743	
100.0	100.0	162.0	162.0	0.1	3.2	164.80	-5,442.8	1,478.9	5,640.1	5,636.7	3.35	1,682.318	
200.0	200.0	262.0	262.0	0.3	5.2	164.80	-5,442.8	1,478.9	5,640.1	5,634.5	5.58	1,011.253	
300.0	300.0	362.0	362.0	0.6	7.2	164.80	-5,442.8	1,478.9	5,640.1	5,632.3	7.80	722.895	
400.0	400.0	462.0	462.0	0.8	9.2	164.80	-5,442.8	1,478.9	5,640.1	5,630.1	10.03	562.499	
500.0	500.0	562.0	562.0	1.0	11.2	164.80	-5,442.8	1,478.9	5,640.1	5,627.8	12.25	460.355	
600.0	600.0	662.0	662.0	1.2	13.2	164.80	-5,442.8	1,478.9	5,640.1	5,625.6	14.48	389.607	
700.0	700.0	762.0	762.0	1.5	15.2	164.80	-5,442.8	1,478.9	5,640.1	5,623.4	16.70	337.707	
800.0	800.0	862.0	862.0	1.7	17.2	164.80	-5,442.8	1,478.9	5,640.1	5,621.2	18.93	298.009	
900.0	900.0	962.0	962.0	1.9	19.2	85.22	-5,442.8	1,478.9	5,640.0	5,618.8	21.14	266.792	
1,000.0	999.8	1,061.8	1,061.8	2.1	21.2	85.28	-5,442.8	1,478.9	5,639.5	5,616.2	23.35	241.544	
1,100.0	1,099.5	1,161.5	1,161.5	2.3	23.2	85.38	-5,442.8	1,478.9	5,638.8	5,613.2	25.57	220.565	
1,200.0	1,198.7	1,260.7	1,260.7	2.6	25.2	85.52	-5,442.8	1,478.9	5,637.8	5,610.0	27.80	202.812	
1,300.0	1,297.5	1,359.5	1,359.5	2.9	27.2	85.71	-5,442.8	1,478.9	5,636.6	5,606.6	30.05	187.548	
1,400.0	1,395.6	1,457.6	1,457.6	3.2	29.2	85.92	-5,442.8	1,478.9	5,635.2	5,602.9	32.34	174.244	
1,500.0	1,493.1	1,555.1	1,555.1	3.6	31.1	86.18	-5,442.8	1,478.9	5,633.6	5,599.0	34.67	162.516	
1,600.0	1,589.8	1,651.8	1,651.8	4.0	33.0	86.44	-5,442.8	1,478.9	5,631.9	5,594.9	37.03	152.089	
1,700.0	1,686.4	1,748.4	1,748.4	4.5	35.0	86.69	-5,442.8	1,478.9	5,630.3	5,590.9	39.42	142.818	
1,800.0	1,783.1	1,845.1	1,845.1	4.9	36.9	86.95	-5,442.8	1,478.9	5,628.9	5,587.0	41.83	134.552	
1,900.0	1,879.7	1,941.7	1,941.7	5.4	38.8	87.20	-5,442.8	1,478.9	5,627.5	5,583.2	44.26	127.151	
2,000.0	1,976.4	2,038.4	2,038.4	5.9	40.8	87.45	-5,442.8	1,478.9	5,626.3	5,579.6	46.69	120.494	
2,100.0	2,073.0	2,135.0	2,135.0	6.4	42.7	87.70	-5,442.8	1,478.9	5,625.1	5,576.0	49.14	114.481	
2,200.0	2,169.6	2,231.6	2,231.6	7.0	44.6	87.96	-5,442.8	1,478.9	5,624.1	5,572.6	51.58	109.027	
2,300.0	2,266.3	2,328.3	2,328.3	7.5	46.6	88.21	-5,442.8	1,478.9	5,623.2	5,569.2	54.04	104.060	
2,400.0	2,362.9	2,424.9	2,424.9	8.0	48.5	88.46	-5,442.8	1,478.9	5,622.5	5,566.0	56.50	99.520	
2,500.0	2,459.6	2,521.6	2,521.6	8.5	50.4	88.72	-5,442.8	1,478.9	5,621.8	5,562.9	58.96	95.355	
2,600.0	2,556.2	2,618.2	2,618.2	9.1	52.4	88.97	-5,442.8	1,478.9	5,621.3	5,559.9	61.42	91.522	
2,700.0	2,652.9	2,714.9	2,714.9	9.6	54.3	89.22	-5,442.8	1,478.9	5,620.9	5,557.0	63.89	87.983	
2,800.0	2,749.5	2,811.5	2,811.5	10.1	56.2	89.47	-5,442.8	1,478.9	5,620.6	5,554.2	66.35	84.707	
2,900.0	2,846.2	2,908.2	2,908.2	10.7	58.2	89.73	-5,442.8	1,478.9	5,620.4	5,551.6	68.82	81.665	
3,000.0	2,942.8	3,004.8	3,004.8	11.2	60.1	89.98	-5,442.8	1,478.9	5,620.3	5,549.0	71.29	78.835	
3,007.6	2,950.1	3,012.1	3,012.1	11.2	60.2	90.00	-5,442.8	1,478.9	5,620.3	5,548.8	71.48	78.629	
3,100.0	3,039.4	3,101.4	3,101.4	11.7	62.0	90.23	-5,442.8	1,478.9	5,620.4	5,546.6	73.76	76.195	
3,200.0	3,136.1	3,198.1	3,198.1	12.3	64.0	90.49	-5,442.8	1,478.9	5,620.5	5,544.3	76.23	73.727	
3,300.0	3,232.7	3,294.7	3,294.7	12.8	65.9	90.74	-5,442.8	1,478.9	5,620.8	5,542.1	78.71	71.414	
3,400.0	3,329.4	3,391.4	3,391.4	13.4	67.8	90.99	-5,442.8	1,478.9	5,621.2	5,540.0	81.18	69.243	
3,500.0	3,426.0	3,488.0	3,488.0	13.9	69.8	91.25	-5,442.8	1,478.9	5,621.7	5,538.1	83.65	67.202	
3,600.0	3,522.7	3,584.7	3,584.7	14.4	71.7	91.50	-5,442.8	1,478.9	5,622.4	5,536.2	86.13	65.279	
3,700.0	3,619.3	3,681.3	3,681.3	15.0	73.6	91.75	-5,442.8	1,478.9	5,623.1	5,534.5	88.60	63.465	
3,800.0	3,715.9	3,777.9	3,777.9	15.5	75.6	92.00	-5,442.8	1,478.9	5,624.0	5,532.9	91.08	61.751	
3,900.0	3,812.6	3,874.6	3,874.6	16.1	77.5	92.26	-5,442.8	1,478.9	5,625.0	5,531.4	93.55	60.128	
4,000.0	3,909.2	3,971.2	3,971.2	16.6	79.4	92.51	-5,442.8	1,478.9	5,626.1	5,530.1	96.02	58.590	
4,100.0	4,005.9	4,067.9	4,067.9	17.1	81.4	92.76	-5,442.8	1,478.9	5,627.3	5,528.8	98.50	57.131	
4,200.0	4,102.5	4,164.5	4,164.5	17.7	83.3	93.02	-5,442.8	1,478.9	5,628.7	5,527.7	100.97	55.745	
4,300.0	4,199.2	4,261.2	4,261.2	18.2	85.2	93.27	-5,442.8	1,478.9	5,630.1	5,526.7	103.45	54.426	
4,400.0	4,295.8	4,357.8	4,357.8	18.8	87.2	93.52	-5,442.8	1,478.9	5,631.7	5,525.8	105.92	53.170	
4,500.0	4,392.5	4,454.5	4,454.5	19.3	89.1	93.77	-5,442.8	1,478.9	5,633.4	5,525.0	108.39	51.972	
4,600.0	4,489.1	4,551.1	4,551.1	19.9	91.0	94.02	-5,442.8	1,478.9	5,635.2	5,524.3	110.87	50.829	
4,700.0	4,585.7	4,647.7	4,647.7	20.4	93.0	94.28	-5,442.8	1,478.9	5,637.1	5,523.8	113.34	49.737	
4,800.0	4,682.4	4,744.4	4,744.4	21.0	94.9	94.53	-5,442.8	1,478.9	5,639.1	5,523.3	115.81	48.693	
4,900.0	4,779.0	4,841.0	4,841.0	21.5	96.8	94.78	-5,442.8	1,478.9	5,641.3	5,523.0	118.28	47.694	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Mark Degenhart 10 (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5160-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,875.7	4,937.7	4,937.7	22.1	98.8	95.03	-5,442.8	1,478.9	5,643.6	5,522.8	120.75	46.737	
5,100.0	4,972.3	5,034.3	5,034.3	22.6	100.7	95.28	-5,442.8	1,478.9	5,646.0	5,522.7	123.22	45.819	
5,200.0	5,069.0	5,131.0	5,131.0	23.1	102.6	95.53	-5,442.8	1,478.9	5,648.5	5,522.8	125.69	44.939	
5,300.0	5,165.6	5,160.0	5,160.0	23.7	103.2	95.61	-5,442.8	1,478.9	5,651.5	5,524.7	126.82	44.565	
5,400.0	5,262.2	5,160.0	5,160.0	24.2	103.2	95.61	-5,442.8	1,478.9	5,656.2	5,528.8	127.36	44.411	
5,500.0	5,358.9	5,160.0	5,160.0	24.8	103.2	95.61	-5,442.8	1,478.9	5,662.7	5,534.8	127.91	44.273	
5,600.0	5,455.5	5,160.0	5,160.0	25.3	103.2	95.61	-5,442.8	1,478.9	5,670.9	5,542.5	128.45	44.149	
5,700.0	5,552.2	5,160.0	5,160.0	25.9	103.2	95.61	-5,442.8	1,478.9	5,680.9	5,551.9	129.00	44.039	
5,800.0	5,648.8	5,160.0	5,160.0	26.4	103.2	95.61	-5,442.8	1,478.9	5,692.6	5,563.1	129.54	43.945	
5,900.0	5,745.5	5,160.0	5,160.0	27.0	103.2	95.61	-5,442.8	1,478.9	5,706.1	5,576.0	130.09	43.864	
6,000.0	5,842.1	5,160.0	5,160.0	27.5	103.2	95.61	-5,442.8	1,478.9	5,721.2	5,590.6	130.63	43.797	
6,100.0	5,938.7	5,160.0	5,160.0	28.1	103.2	95.61	-5,442.8	1,478.9	5,738.1	5,606.9	131.18	43.743	
6,200.0	6,035.4	5,160.0	5,160.0	28.6	103.2	95.61	-5,442.8	1,478.9	5,756.7	5,624.9	131.72	43.703	
6,300.0	6,132.3	5,160.0	5,160.0	29.1	103.2	95.90	-5,442.8	1,478.9	5,776.8	5,644.6	132.21	43.695	SF
6,400.0	6,229.9	5,160.0	5,160.0	29.5	103.2	96.34	-5,442.8	1,478.9	5,798.3	5,665.7	132.56	43.739	
6,500.0	6,328.2	5,160.0	5,160.0	29.8	103.2	96.80	-5,442.8	1,478.9	5,821.0	5,688.1	132.87	43.809	
6,600.0	6,427.1	5,160.0	5,160.0	30.1	103.2	97.29	-5,442.8	1,478.9	5,845.0	5,711.8	133.13	43.904	
6,700.0	6,526.5	5,160.0	5,160.0	30.3	103.2	97.80	-5,442.8	1,478.9	5,870.1	5,736.8	133.34	44.022	
6,800.0	6,626.2	5,160.0	5,160.0	30.5	103.2	98.34	-5,442.8	1,478.9	5,896.4	5,762.9	133.51	44.166	
6,900.0	6,726.1	5,160.0	5,160.0	30.6	103.2	98.91	-5,442.8	1,478.9	5,923.7	5,790.1	133.62	44.332	
7,000.0	6,826.1	5,160.0	5,160.0	30.7	103.2	178.94	-5,442.8	1,478.9	5,952.1	5,818.4	133.70	44.519	
7,100.0	6,926.1	5,160.0	5,160.0	30.8	103.2	178.94	-5,442.8	1,478.9	5,981.9	5,848.1	133.81	44.706	
7,200.0	7,025.8	5,160.0	5,160.0	30.9	103.2	-1.03	-5,442.8	1,478.9	6,007.4	5,874.6	132.81	45.234	
7,300.0	7,123.9	5,160.0	5,160.0	31.0	103.2	-1.01	-5,442.8	1,478.9	6,021.8	5,892.2	129.57	46.475	
7,400.0	7,218.7	5,160.0	5,160.0	31.0	103.2	-1.01	-5,442.8	1,478.9	6,024.7	5,900.6	124.16	48.522	
7,500.0	7,308.6	5,160.0	5,160.0	31.0	103.2	-1.02	-5,442.8	1,478.9	6,016.3	5,899.6	116.70	51.555	
7,600.0	7,391.9	5,160.0	5,160.0	31.0	103.2	-1.05	-5,442.8	1,478.9	5,996.5	5,889.2	107.31	55.877	
7,700.0	7,467.4	5,160.0	5,160.0	31.0	103.2	-1.09	-5,442.8	1,478.9	5,965.6	5,869.4	96.22	62.002	
7,800.0	7,533.7	5,160.0	5,160.0	31.0	103.2	-1.16	-5,442.8	1,478.9	5,924.0	5,840.4	83.64	70.826	
7,900.0	7,589.7	5,160.0	5,160.0	31.1	103.2	-1.25	-5,442.8	1,478.9	5,872.2	5,802.3	69.90	84.011	
8,000.0	7,634.3	5,160.0	5,160.0	31.3	103.2	-1.39	-5,442.8	1,478.9	5,810.7	5,755.4	55.38	104.934	
8,100.0	7,667.0	5,160.0	5,160.0	31.5	103.2	-1.58	-5,442.8	1,478.9	5,740.5	5,699.9	40.60	141.394	
8,200.0	7,687.0	5,160.0	5,160.0	31.8	103.2	-1.87	-5,442.8	1,478.9	5,662.2	5,635.9	26.34	214.975	
8,300.0	7,694.0	5,160.0	5,160.0	32.2	103.2	-2.31	-5,442.8	1,478.9	5,577.1	5,561.0	16.06	347.296	
8,400.0	7,694.2	5,160.0	5,160.0	32.8	103.2	-2.33	-5,442.8	1,478.9	5,488.8	5,472.3	16.53	332.123	
8,500.0	7,694.3	5,160.0	5,160.0	33.4	103.2	-2.33	-5,442.8	1,478.9	5,401.0	5,384.0	17.02	317.377	
8,600.0	7,694.5	5,160.0	5,160.0	34.2	103.2	-2.33	-5,442.8	1,478.9	5,313.6	5,296.1	17.53	303.090	
8,700.0	7,694.6	5,160.0	5,160.0	35.0	103.2	-2.33	-5,442.8	1,478.9	5,226.7	5,208.7	18.07	289.319	
8,800.0	7,694.7	5,160.0	5,160.0	35.9	103.2	-2.33	-5,442.8	1,478.9	5,140.3	5,121.6	18.62	276.099	
8,900.0	7,694.9	5,160.0	5,160.0	37.0	103.2	-2.33	-5,442.8	1,478.9	5,054.3	5,035.1	19.19	263.447	
9,000.0	7,695.0	5,160.0	5,160.0	38.1	103.2	-2.33	-5,442.8	1,478.9	4,968.9	4,949.1	19.77	251.369	
9,100.0	7,695.2	5,160.0	5,160.0	39.2	103.2	-2.33	-5,442.8	1,478.9	4,884.0	4,863.7	20.36	239.859	
9,200.0	7,695.3	5,160.0	5,160.0	40.5	103.2	-2.33	-5,442.8	1,478.9	4,799.7	4,778.8	20.97	228.907	
9,300.0	7,695.4	5,160.0	5,160.0	41.8	103.2	-2.33	-5,442.8	1,478.9	4,716.0	4,694.5	21.58	218.496	
9,400.0	7,695.6	5,160.0	5,160.0	43.1	103.2	-2.33	-5,442.8	1,478.9	4,633.0	4,610.8	22.21	208.607	
9,500.0	7,695.7	5,160.0	5,160.0	44.5	103.2	-2.33	-5,442.8	1,478.9	4,550.7	4,527.8	22.84	199.218	
9,600.0	7,695.9	5,160.0	5,160.0	45.9	103.2	-2.33	-5,442.8	1,478.9	4,469.0	4,445.6	23.48	190.306	
9,700.0	7,696.0	5,160.0	5,160.0	47.4	103.2	-2.33	-5,442.8	1,478.9	4,388.2	4,364.0	24.13	181.850	
9,800.0	7,696.1	5,160.0	5,160.0	48.9	103.2	-2.33	-5,442.8	1,478.9	4,308.1	4,283.3	24.78	173.825	
9,900.0	7,696.3	5,160.0	5,160.0	50.4	103.2	-2.33	-5,442.8	1,478.9	4,228.9	4,203.5	25.44	166.210	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Mark Degenhart 10 (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 5160-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,696.4	5,160.0	5,160.0	52.0	103.2	-2.33	-5,442.8	1,478.9	4,150.6	4,124.5	26.11	158.983	
10,100.0	7,696.6	5,160.0	5,160.0	53.6	103.2	-2.33	-5,442.8	1,478.9	4,073.2	4,046.4	26.78	152.125	
10,200.0	7,696.7	5,160.0	5,160.0	55.2	103.2	-2.33	-5,442.8	1,478.9	3,996.9	3,969.4	27.45	145.616	
10,300.0	7,696.8	5,160.0	5,160.0	56.8	103.2	-2.33	-5,442.8	1,478.9	3,921.6	3,893.4	28.12	139.436	
10,400.0	7,697.0	5,160.0	5,160.0	58.4	103.2	-2.33	-5,442.8	1,478.9	3,847.4	3,818.6	28.80	133.570	
10,500.0	7,697.1	5,160.0	5,160.0	60.1	103.2	-2.33	-5,442.8	1,478.9	3,774.4	3,744.9	29.49	128.001	
10,600.0	7,697.3	5,160.0	5,160.0	61.8	103.2	-2.33	-5,442.8	1,478.9	3,702.7	3,672.5	30.17	122.714	
10,700.0	7,697.4	5,160.0	5,160.0	63.5	103.2	-2.33	-5,442.8	1,478.9	3,632.3	3,601.4	30.86	117.695	
10,800.0	7,697.5	5,160.0	5,160.0	65.2	103.2	-2.33	-5,442.8	1,478.9	3,563.3	3,531.8	31.55	112.931	
10,900.0	7,697.7	5,160.0	5,160.0	66.9	103.2	-2.33	-5,442.8	1,478.9	3,495.9	3,463.6	32.25	108.410	
11,000.0	7,697.8	5,160.0	5,160.0	68.6	103.2	-2.33	-5,442.8	1,478.9	3,430.0	3,397.1	32.94	104.120	
11,100.0	7,698.0	5,160.0	5,160.0	70.3	103.2	-2.33	-5,442.8	1,478.9	3,365.8	3,332.2	33.64	100.052	
11,200.0	7,698.1	5,160.0	5,160.0	72.1	103.2	-2.33	-5,442.8	1,478.9	3,303.4	3,269.1	34.34	96.196	
11,300.0	7,698.2	5,160.0	5,160.0	73.8	103.2	-2.33	-5,442.8	1,478.9	3,242.9	3,207.8	35.04	92.544	
11,400.0	7,698.4	5,160.0	5,160.0	75.6	103.2	-2.33	-5,442.8	1,478.9	3,184.3	3,148.6	35.74	89.086	
11,500.0	7,698.5	5,160.0	5,160.0	77.4	103.2	-2.33	-5,442.8	1,478.9	3,127.9	3,091.4	36.45	85.815	
11,600.0	7,698.7	5,160.0	5,160.0	79.1	103.2	-2.33	-5,442.8	1,478.9	3,073.7	3,036.5	37.15	82.726	
11,700.0	7,698.8	5,160.0	5,160.0	80.9	103.2	-2.33	-5,442.8	1,478.9	3,021.8	2,983.9	37.86	79.810	
11,800.0	7,698.9	5,160.0	5,160.0	82.7	103.2	-2.33	-5,442.8	1,478.9	2,972.4	2,933.8	38.57	77.063	
11,900.0	7,699.1	5,160.0	5,160.0	84.5	103.2	-2.33	-5,442.8	1,478.9	2,925.5	2,886.2	39.28	74.478	
12,000.0	7,699.2	5,160.0	5,160.0	86.3	103.2	-2.33	-5,442.8	1,478.9	2,881.4	2,841.4	39.99	72.051	
12,100.0	7,699.4	5,160.0	5,160.0	88.1	103.2	-2.33	-5,442.8	1,478.9	2,840.1	2,799.4	40.70	69.776	
12,200.0	7,699.5	5,160.0	5,160.0	89.9	103.2	-2.33	-5,442.8	1,478.9	2,801.8	2,760.4	41.42	67.650	
12,300.0	7,699.6	5,160.0	5,160.0	91.7	103.2	-2.33	-5,442.8	1,478.9	2,766.5	2,724.4	42.13	65.667	
12,400.0	7,699.8	5,160.0	5,160.0	93.6	103.2	-2.33	-5,442.8	1,478.9	2,734.5	2,691.6	42.84	63.824	
12,500.0	7,699.9	5,160.0	5,160.0	95.4	103.2	-2.33	-5,442.8	1,478.9	2,705.8	2,662.2	43.56	62.116	
12,600.0	7,700.0	5,160.0	5,160.0	97.2	103.2	-2.33	-5,442.8	1,478.9	2,680.5	2,636.2	44.28	60.540	
12,700.0	7,700.2	5,160.0	5,160.0	99.0	103.2	-2.33	-5,442.8	1,478.9	2,658.7	2,613.7	44.99	59.091	
12,800.0	7,700.3	5,160.0	5,160.0	100.9	103.2	-2.33	-5,442.8	1,478.9	2,640.5	2,594.8	45.71	57.766	
12,900.0	7,700.5	5,160.0	5,160.0	102.7	103.2	-2.33	-5,442.8	1,478.9	2,626.1	2,579.6	46.43	56.561	
13,000.0	7,700.6	5,160.0	5,160.0	104.5	103.2	-2.33	-5,442.8	1,478.9	2,615.3	2,568.2	47.15	55.471	
13,100.0	7,700.7	5,160.0	5,160.0	106.4	103.2	-2.33	-5,442.8	1,478.9	2,608.4	2,560.5	47.87	54.492	
13,200.0	7,700.9	5,160.0	5,160.0	108.2	103.2	-2.33	-5,442.8	1,478.9	2,605.3	2,556.7	48.59	53.620	
13,231.2	7,700.9	5,160.0	5,160.0	108.8	103.2	-2.33	-5,442.8	1,478.9	2,605.1	2,556.3	48.81	53.369	CC, ES
13,300.0	7,701.0	5,160.0	5,160.0	110.1	103.2	-2.33	-5,442.8	1,478.9	2,606.0	2,556.7	49.31	52.851	
13,400.0	7,701.2	5,160.0	5,160.0	111.9	103.2	-2.33	-5,442.8	1,478.9	2,610.5	2,560.5	50.03	52.180	
13,500.0	7,701.3	5,160.0	5,160.0	113.8	103.2	-2.33	-5,442.8	1,478.9	2,618.9	2,568.2	50.75	51.603	
13,600.0	7,701.4	5,160.0	5,160.0	115.6	103.2	-2.33	-5,442.8	1,478.9	2,631.1	2,579.6	51.47	51.115	
13,700.0	7,701.6	5,160.0	5,160.0	117.5	103.2	-2.33	-5,442.8	1,478.9	2,646.9	2,594.7	52.20	50.711	
13,800.0	7,701.7	5,160.0	5,160.0	119.3	103.2	-2.33	-5,442.8	1,478.9	2,666.4	2,613.5	52.92	50.387	
13,900.0	7,701.9	5,160.0	5,160.0	121.2	103.2	-2.33	-5,442.8	1,478.9	2,689.6	2,635.9	53.64	50.138	
14,000.0	7,702.0	5,160.0	5,160.0	123.0	103.2	-2.33	-5,442.8	1,478.9	2,716.1	2,661.8	54.37	49.960	
14,100.0	7,702.1	5,160.0	5,160.0	124.9	103.2	-2.33	-5,442.8	1,478.9	2,746.1	2,691.0	55.09	49.847	
14,200.0	7,702.3	5,160.0	5,160.0	126.8	103.2	-2.33	-5,442.8	1,478.9	2,779.4	2,723.6	55.82	49.796	
14,300.0	7,702.4	5,160.0	5,160.0	128.6	103.2	-2.33	-5,442.8	1,478.9	2,815.8	2,759.3	56.54	49.801	
14,400.0	7,702.6	5,160.0	5,160.0	130.5	103.2	-2.33	-5,442.8	1,478.9	2,855.3	2,798.0	57.27	49.859	
14,500.0	7,702.7	5,160.0	5,160.0	132.3	103.2	-2.33	-5,442.8	1,478.9	2,897.6	2,839.6	57.99	49.966	
14,600.0	7,702.8	5,160.0	5,160.0	134.2	103.2	-2.33	-5,442.8	1,478.9	2,942.8	2,884.1	58.72	50.118	
14,700.0	7,703.0	5,160.0	5,160.0	136.1	103.2	-2.33	-5,442.8	1,478.9	2,990.6	2,931.2	59.44	50.310	
14,713.5	7,703.0	5,160.0	5,160.0	136.3	103.2	-2.33	-5,442.8	1,478.9	2,997.3	2,937.7	59.54	50.339	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-114.9	114.9				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-114.9	114.9	114.6	0.22	511.001	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-114.9	114.9	114.2	0.67	170.334	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-114.9	114.9	113.7	1.12	102.200	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-114.9	114.9	113.3	1.57	73.000	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-114.9	114.9	112.8	2.02	56.778	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-114.9	114.9	112.4	2.47	46.455	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	0.0	-114.9	114.9	111.9	2.92	39.308	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-114.9	114.9	111.5	3.37	34.067	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-169.75	0.0	-114.9	116.6	112.8	3.81	30.598	
1,000.0	999.8	999.8	999.8	2.1	2.1	-170.17	0.0	-114.9	121.7	117.5	4.24	28.719	
1,100.0	1,099.5	1,099.5	1,099.5	2.3	2.4	-170.80	0.0	-114.9	130.3	125.7	4.67	27.923	
1,200.0	1,198.7	1,198.7	1,198.7	2.6	2.6	-171.55	0.0	-114.9	142.4	137.3	5.09	27.943	
1,300.0	1,297.5	1,297.5	1,297.5	2.9	2.8	-172.34	0.0	-114.9	157.9	152.3	5.52	28.593	
1,400.0	1,395.6	1,395.6	1,395.6	3.2	3.0	-173.12	0.0	-114.9	176.8	170.8	5.94	29.738	
1,500.0	1,493.1	1,493.1	1,493.1	3.6	3.2	-173.84	0.0	-114.9	199.1	192.8	6.37	31.278	
1,600.0	1,589.8	1,589.8	1,589.8	4.0	3.5	-174.52	0.0	-114.9	224.4	217.6	6.81	32.963	
1,700.0	1,686.4	1,686.4	1,686.4	4.5	3.7	-175.08	0.0	-114.9	250.0	242.7	7.27	34.395	
1,800.0	1,783.1	1,783.1	1,783.1	4.9	3.9	-175.54	0.0	-114.9	275.6	267.9	7.73	35.634	
1,900.0	1,879.7	1,879.7	1,879.7	5.4	4.1	-175.92	0.0	-114.9	301.2	293.0	8.20	36.715	
2,000.0	1,976.4	1,976.4	1,976.4	5.9	4.3	-176.24	0.0	-114.9	326.8	318.2	8.68	37.664	
2,100.0	2,073.0	2,076.5	2,076.5	6.4	4.6	-176.36	1.0	-114.6	352.1	343.0	9.16	38.438	
2,200.0	2,169.6	2,178.3	2,178.2	7.0	4.8	-175.96	5.4	-113.4	376.2	366.5	9.65	38.988	
2,300.0	2,266.3	2,280.5	2,280.1	7.5	5.0	-175.11	13.3	-111.3	399.0	388.9	10.14	39.334	
2,400.0	2,362.9	2,381.9	2,380.8	8.0	5.2	-173.90	24.5	-108.3	420.7	410.1	10.65	39.503	
2,500.0	2,459.6	2,479.2	2,477.3	8.5	5.5	-172.70	36.5	-105.1	442.3	431.1	11.17	39.603	
2,600.0	2,556.2	2,576.5	2,573.8	9.1	5.7	-171.62	48.4	-101.9	463.9	452.2	11.70	39.666	
2,700.0	2,652.9	2,673.7	2,670.2	9.6	6.0	-170.63	60.4	-98.7	485.8	473.5	12.24	39.698	
2,800.0	2,749.5	2,771.0	2,766.7	10.1	6.2	-169.72	72.3	-95.6	507.7	494.9	12.79	39.705	
2,900.0	2,846.2	2,868.2	2,863.2	10.7	6.5	-168.89	84.3	-92.4	529.8	516.4	13.35	39.691	
3,000.0	2,942.8	2,965.5	2,959.6	11.2	6.7	-168.13	96.2	-89.2	551.9	538.0	13.92	39.661	
3,100.0	3,039.4	3,062.7	3,056.1	11.7	7.0	-167.42	108.2	-86.0	574.2	559.7	14.49	39.618	
3,200.0	3,136.1	3,160.0	3,152.6	12.3	7.3	-166.77	120.1	-82.8	596.5	581.5	15.08	39.565	
3,300.0	3,232.7	3,257.3	3,249.0	12.8	7.5	-166.16	132.1	-79.6	618.9	603.3	15.67	39.504	
3,400.0	3,329.4	3,354.5	3,345.5	13.4	7.8	-165.60	144.0	-76.4	641.4	625.1	16.26	39.438	
3,500.0	3,426.0	3,451.8	3,442.0	13.9	8.1	-165.07	156.0	-73.2	663.9	647.0	16.86	39.367	
3,600.0	3,522.7	3,549.0	3,538.4	14.4	8.4	-164.58	167.9	-70.0	686.5	669.0	17.47	39.293	
3,700.0	3,619.3	3,646.3	3,634.9	15.0	8.7	-164.12	179.9	-66.9	709.1	691.0	18.08	39.217	
3,800.0	3,715.9	3,743.5	3,731.4	15.5	9.0	-163.69	191.8	-63.7	731.7	713.0	18.69	39.141	
3,900.0	3,812.6	3,840.8	3,827.8	16.1	9.2	-163.28	203.8	-60.5	754.4	735.1	19.31	39.063	
4,000.0	3,909.2	3,938.1	3,924.3	16.6	9.5	-162.90	215.7	-57.3	777.1	757.2	19.93	38.986	
4,100.0	4,005.9	4,035.3	4,020.8	17.1	9.8	-162.54	227.7	-54.1	799.9	779.3	20.56	38.909	
4,200.0	4,102.5	4,129.4	4,114.2	17.7	10.1	-162.29	238.2	-51.3	822.8	801.7	21.13	38.945	
4,300.0	4,199.2	4,222.7	4,207.2	18.2	10.3	-162.26	245.7	-49.3	846.2	824.6	21.64	39.103	
4,400.0	4,295.8	4,315.8	4,300.2	18.8	10.4	-162.43	250.3	-48.1	870.0	847.9	22.12	39.342	
4,500.0	4,392.5	4,408.5	4,392.8	19.3	10.6	-162.79	252.0	-47.6	894.4	871.8	22.55	39.657	
4,600.0	4,489.1	4,504.8	4,489.1	19.9	10.8	-163.26	252.0	-47.6	919.0	896.0	22.99	39.975	
4,700.0	4,585.7	4,601.4	4,585.7	20.4	11.0	-163.71	252.0	-47.6	943.7	920.3	23.45	40.249	
4,800.0	4,682.4	4,698.0	4,682.4	21.0	11.2	-164.14	252.0	-47.6	968.5	944.6	23.91	40.512	
4,900.0	4,779.0	4,794.7	4,779.0	21.5	11.4	-164.54	252.0	-47.6	993.3	968.9	24.37	40.764	
5,000.0	4,875.7	4,891.3	4,875.7	22.1	11.6	-164.93	252.0	-47.6	1,018.1	993.3	24.83	41.006	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,972.3	4,988.0	4,972.3	22.6	11.8	-165.29	252.0	-47.6	1,043.0	1,017.7	25.29	41.239	
5,200.0	5,069.0	5,084.6	5,069.0	23.1	12.0	-165.64	252.0	-47.6	1,067.9	1,042.1	25.76	41.463	
5,300.0	5,165.6	5,181.3	5,165.6	23.7	12.2	-165.98	252.0	-47.6	1,092.9	1,066.6	26.22	41.678	
5,400.0	5,262.2	5,277.9	5,262.2	24.2	12.4	-166.29	252.0	-47.6	1,117.8	1,091.2	26.69	41.885	
5,500.0	5,358.9	5,374.5	5,358.9	24.8	12.6	-166.60	252.0	-47.6	1,142.9	1,115.7	27.16	42.084	
5,600.0	5,455.5	5,471.2	5,455.5	25.3	12.8	-166.89	252.0	-47.6	1,167.9	1,140.3	27.63	42.276	
5,700.0	5,552.2	5,567.8	5,552.2	25.9	13.0	-167.17	252.0	-47.6	1,193.0	1,164.9	28.10	42.460	
5,800.0	5,648.8	5,664.5	5,648.8	26.4	13.2	-167.44	252.0	-47.6	1,218.1	1,189.5	28.57	42.638	
5,900.0	5,745.5	5,761.1	5,745.5	27.0	13.4	-167.69	252.0	-47.6	1,243.2	1,214.2	29.04	42.809	
6,000.0	5,842.1	5,857.8	5,842.1	27.5	13.6	-167.94	252.0	-47.6	1,268.4	1,238.9	29.52	42.974	
6,100.0	5,938.7	5,954.4	5,938.7	28.1	13.8	-168.18	252.0	-47.6	1,293.5	1,263.5	29.99	43.133	
6,200.0	6,035.4	6,051.1	6,035.4	28.6	14.0	-168.41	252.0	-47.6	1,318.7	1,288.3	30.47	43.286	
6,300.0	6,132.3	6,147.9	6,132.3	29.1	14.2	-168.69	252.0	-47.6	1,343.1	1,312.1	30.99	43.343	
6,400.0	6,229.9	6,245.5	6,229.9	29.5	14.4	-168.95	252.0	-47.6	1,364.3	1,332.8	31.48	43.337	
6,500.0	6,328.2	6,343.9	6,328.2	29.8	14.6	-169.16	252.0	-47.6	1,382.2	1,350.3	31.94	43.276	
6,600.0	6,427.1	6,442.8	6,427.1	30.1	14.8	-169.33	252.0	-47.6	1,396.7	1,364.3	32.36	43.163	
6,700.0	6,526.5	6,542.1	6,526.5	30.3	15.0	-169.46	252.0	-47.6	1,407.8	1,375.0	32.74	43.000	
6,800.0	6,626.2	6,641.8	6,626.2	30.5	15.2	-169.54	252.0	-47.6	1,415.5	1,382.4	33.08	42.790	
6,900.0	6,726.1	6,741.7	6,726.1	30.6	15.4	-169.59	252.0	-47.6	1,419.7	1,386.3	33.38	42.533	
7,000.0	6,826.1	6,841.7	6,826.1	30.7	15.6	-90.00	252.0	-47.6	1,420.7	1,387.0	33.68	42.186	
7,033.9	6,860.0	6,875.7	6,860.0	30.8	15.7	-90.01	251.6	-47.6	1,420.7	1,386.9	33.79	42.038	
7,100.0	6,926.1	6,941.3	6,925.4	30.8	15.8	-90.21	246.8	-47.6	1,420.7	1,386.7	33.98	41.812	
7,200.0	7,025.8	7,039.1	7,021.6	30.9	15.9	89.31	229.3	-47.6	1,420.8	1,386.6	34.15	41.609	
7,300.0	7,123.9	7,135.5	7,113.4	31.0	15.9	88.84	200.1	-47.6	1,420.9	1,386.7	34.22	41.518	
7,400.0	7,218.7	7,230.6	7,199.7	31.0	16.0	88.40	160.2	-47.6	1,421.2	1,387.0	34.26	41.481	
7,500.0	7,308.6	7,324.5	7,279.4	31.0	16.0	87.98	110.6	-47.6	1,421.5	1,387.2	34.31	41.433	
7,600.0	7,391.9	7,417.4	7,351.6	31.0	16.0	87.60	52.3	-47.6	1,421.9	1,387.5	34.42	41.305	
7,700.0	7,467.4	7,509.3	7,415.6	31.0	16.2	87.25	-13.5	-47.6	1,422.3	1,387.6	34.67	41.029	
7,800.0	7,533.7	7,600.0	7,470.5	31.0	16.4	86.95	-85.6	-47.6	1,422.7	1,387.6	35.08	40.551	
7,900.0	7,589.7	7,690.8	7,516.6	31.1	16.8	86.70	-163.8	-47.6	1,423.0	1,387.3	35.73	39.825	
8,000.0	7,634.3	7,780.8	7,552.8	31.3	17.3	86.50	-246.1	-47.6	1,423.3	1,386.7	36.63	38.858	
8,100.0	7,667.0	7,870.3	7,579.0	31.5	17.9	86.36	-331.7	-47.6	1,423.5	1,385.8	37.78	37.677	
8,200.0	7,687.0	7,959.5	7,594.9	31.8	18.7	86.27	-419.4	-47.6	1,423.7	1,384.5	39.19	36.331	
8,300.0	7,694.0	8,050.7	7,600.6	32.2	19.6	86.23	-510.3	-47.6	1,423.7	1,382.9	40.84	34.864	
8,335.9	7,694.2	8,084.3	7,600.6	32.4	19.9	86.23	-544.0	-47.6	1,423.7	1,382.2	41.54	34.275	
8,400.0	7,694.2	8,148.4	7,600.8	32.8	20.7	86.24	-608.1	-47.6	1,423.7	1,380.8	42.88	33.203	
8,500.0	7,694.3	8,248.4	7,601.0	33.4	21.9	86.24	-708.1	-47.6	1,423.7	1,378.6	45.16	31.524	
8,600.0	7,694.5	8,348.4	7,601.2	34.2	23.2	86.24	-808.1	-47.6	1,423.7	1,376.1	47.64	29.882	
8,700.0	7,694.6	8,448.4	7,601.4	35.0	24.5	86.25	-908.1	-47.6	1,423.7	1,373.4	50.29	28.308	
8,800.0	7,694.7	8,548.4	7,601.6	35.9	26.0	86.25	-1,008.1	-47.6	1,423.7	1,370.6	53.09	26.818	
8,900.0	7,694.9	8,648.4	7,601.8	37.0	27.5	86.25	-1,108.1	-47.6	1,423.7	1,367.7	56.00	25.423	
9,000.0	7,695.0	8,748.4	7,602.0	38.1	29.1	86.25	-1,208.1	-47.6	1,423.7	1,364.7	59.02	24.123	
9,100.0	7,695.2	8,848.4	7,602.2	39.2	30.6	86.26	-1,308.1	-47.6	1,423.7	1,361.6	62.13	22.916	
9,200.0	7,695.3	8,948.4	7,602.4	40.5	32.3	86.26	-1,408.1	-47.6	1,423.7	1,358.4	65.31	21.799	
9,300.0	7,695.4	9,048.4	7,602.6	41.8	33.9	86.26	-1,508.1	-47.6	1,423.7	1,355.1	68.56	20.767	
9,400.0	7,695.6	9,148.4	7,602.9	43.1	35.6	86.27	-1,608.1	-47.6	1,423.7	1,351.8	71.86	19.812	
9,500.0	7,695.7	9,248.4	7,603.1	44.5	37.3	86.27	-1,708.1	-47.6	1,423.7	1,348.5	75.21	18.928	
9,600.0	7,695.9	9,348.4	7,603.3	45.9	39.1	86.27	-1,808.1	-47.6	1,423.7	1,345.1	78.61	18.110	
9,700.0	7,696.0	9,448.4	7,603.5	47.4	40.8	86.27	-1,908.1	-47.6	1,423.7	1,341.6	82.05	17.352	
9,800.0	7,696.1	9,548.4	7,603.7	48.9	42.6	86.28	-2,008.1	-47.6	1,423.7	1,338.1	85.51	16.648	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,900.0	7,696.3	9,648.4	7,603.9	50.4	44.3	86.28	-2,108.1	-47.6	1,423.7	1,334.6	89.01	15.994	
10,000.0	7,696.4	9,748.4	7,604.1	52.0	46.1	86.28	-2,208.1	-47.6	1,423.6	1,331.1	92.53	15.385	
10,100.0	7,696.6	9,848.4	7,604.3	53.6	47.9	86.29	-2,308.1	-47.6	1,423.6	1,327.6	96.08	14.818	
10,200.0	7,696.7	9,948.4	7,604.5	55.2	49.7	86.29	-2,408.1	-47.6	1,423.6	1,324.0	99.64	14.287	
10,300.0	7,696.8	10,048.4	7,604.7	56.8	51.5	86.29	-2,508.1	-47.6	1,423.6	1,320.4	103.23	13.791	
10,400.0	7,697.0	10,148.4	7,605.0	58.4	53.3	86.29	-2,608.1	-47.6	1,423.6	1,316.8	106.83	13.326	
10,500.0	7,697.1	10,248.4	7,605.2	60.1	55.2	86.30	-2,708.1	-47.6	1,423.6	1,313.2	110.45	12.890	
10,600.0	7,697.3	10,348.4	7,605.4	61.8	57.0	86.30	-2,808.1	-47.6	1,423.6	1,309.5	114.07	12.480	
10,700.0	7,697.4	10,448.4	7,605.6	63.5	58.8	86.30	-2,908.1	-47.6	1,423.6	1,305.9	117.72	12.094	
10,800.0	7,697.5	10,548.4	7,605.8	65.2	60.7	86.30	-3,008.1	-47.6	1,423.6	1,302.2	121.37	11.730	
10,900.0	7,697.7	10,648.4	7,606.0	66.9	62.5	86.31	-3,108.1	-47.6	1,423.6	1,298.6	125.03	11.386	
11,000.0	7,697.8	10,748.4	7,606.2	68.6	64.4	86.31	-3,208.1	-47.6	1,423.6	1,294.9	128.71	11.061	
11,100.0	7,698.0	10,848.4	7,606.4	70.3	66.2	86.31	-3,308.1	-47.6	1,423.6	1,291.2	132.39	10.753	
11,200.0	7,698.1	10,948.4	7,606.6	72.1	68.1	86.32	-3,408.1	-47.6	1,423.6	1,287.5	136.08	10.462	
11,300.0	7,698.2	11,048.4	7,606.8	73.8	69.9	86.32	-3,508.1	-47.6	1,423.6	1,283.8	139.77	10.185	
11,400.0	7,698.4	11,148.4	7,607.0	75.6	71.8	86.32	-3,608.1	-47.6	1,423.6	1,280.1	143.48	9.922	
11,500.0	7,698.5	11,248.4	7,607.3	77.4	73.7	86.32	-3,708.1	-47.6	1,423.6	1,276.4	147.19	9.672	
11,600.0	7,698.7	11,348.4	7,607.5	79.1	75.5	86.33	-3,808.1	-47.6	1,423.6	1,272.7	150.90	9.434	
11,700.0	7,698.8	11,448.4	7,607.7	80.9	77.4	86.33	-3,908.1	-47.6	1,423.6	1,269.0	154.62	9.207	
11,800.0	7,698.9	11,548.4	7,607.9	82.7	79.3	86.33	-4,008.1	-47.6	1,423.6	1,265.2	158.35	8.990	
11,900.0	7,699.1	11,648.4	7,608.1	84.5	81.1	86.34	-4,108.1	-47.6	1,423.6	1,261.5	162.08	8.783	
12,000.0	7,699.2	11,748.4	7,608.3	86.3	83.0	86.34	-4,208.1	-47.6	1,423.6	1,257.7	165.81	8.585	
12,100.0	7,699.4	11,848.4	7,608.5	88.1	84.9	86.34	-4,308.1	-47.6	1,423.6	1,254.0	169.55	8.396	
12,200.0	7,699.5	11,948.4	7,608.7	89.9	86.8	86.34	-4,408.1	-47.6	1,423.5	1,250.3	173.29	8.215	
12,300.0	7,699.6	12,048.4	7,608.9	91.7	88.7	86.35	-4,508.1	-47.6	1,423.5	1,246.5	177.04	8.041	
12,400.0	7,699.8	12,148.4	7,609.1	93.6	90.5	86.35	-4,608.1	-47.6	1,423.5	1,242.8	180.79	7.874	
12,500.0	7,699.9	12,248.4	7,609.3	95.4	92.4	86.35	-4,708.1	-47.6	1,423.5	1,239.0	184.54	7.714	
12,600.0	7,700.0	12,348.4	7,609.6	97.2	94.3	86.36	-4,808.1	-47.6	1,423.5	1,235.2	188.29	7.560	
12,700.0	7,700.2	12,448.4	7,609.8	99.0	96.2	86.36	-4,908.1	-47.6	1,423.5	1,231.5	192.05	7.412	
12,800.0	7,700.3	12,548.4	7,610.0	100.9	98.1	86.36	-5,008.1	-47.6	1,423.5	1,227.7	195.81	7.270	
12,900.0	7,700.5	12,648.4	7,610.2	102.7	100.0	86.36	-5,108.1	-47.6	1,423.5	1,223.9	199.57	7.133	
13,000.0	7,700.6	12,748.4	7,610.4	104.5	101.9	86.37	-5,208.1	-47.6	1,423.5	1,220.2	203.34	7.001	
13,100.0	7,700.7	12,848.4	7,610.6	106.4	103.8	86.37	-5,308.1	-47.6	1,423.5	1,216.4	207.11	6.873	
13,200.0	7,700.9	12,948.4	7,610.8	108.2	105.6	86.37	-5,408.1	-47.6	1,423.5	1,212.6	210.88	6.750	
13,300.0	7,701.0	13,048.4	7,611.0	110.1	107.5	86.38	-5,508.1	-47.6	1,423.5	1,208.9	214.65	6.632	
13,400.0	7,701.2	13,148.4	7,611.2	111.9	109.4	86.38	-5,608.1	-47.6	1,423.5	1,205.1	218.42	6.517	
13,500.0	7,701.3	13,248.4	7,611.4	113.8	111.3	86.38	-5,708.1	-47.6	1,423.5	1,201.3	222.20	6.406	
13,600.0	7,701.4	13,348.4	7,611.7	115.6	113.2	86.38	-5,808.1	-47.6	1,423.5	1,197.5	225.97	6.299	
13,700.0	7,701.6	13,448.4	7,611.9	117.5	115.1	86.39	-5,908.1	-47.6	1,423.5	1,193.7	229.75	6.196	
13,800.0	7,701.7	13,548.4	7,612.1	119.3	117.0	86.39	-6,008.1	-47.6	1,423.5	1,189.9	233.53	6.095	
13,900.0	7,701.9	13,648.4	7,612.3	121.2	118.9	86.39	-6,108.1	-47.6	1,423.5	1,186.2	237.31	5.998	
14,000.0	7,702.0	13,748.4	7,612.5	123.0	120.8	86.39	-6,208.1	-47.6	1,423.5	1,182.4	241.10	5.904	
14,100.0	7,702.1	13,848.4	7,612.7	124.9	122.7	86.40	-6,308.1	-47.6	1,423.5	1,178.6	244.88	5.813	
14,200.0	7,702.3	13,948.4	7,612.9	126.8	124.6	86.40	-6,408.1	-47.6	1,423.5	1,174.8	248.66	5.724	
14,300.0	7,702.4	14,048.4	7,613.1	128.6	126.5	86.40	-6,508.1	-47.6	1,423.5	1,171.0	252.45	5.639	
14,400.0	7,702.6	14,148.4	7,613.3	130.5	128.4	86.41	-6,608.1	-47.6	1,423.5	1,167.2	256.24	5.555	
14,500.0	7,702.7	14,248.4	7,613.5	132.3	130.3	86.41	-6,708.1	-47.6	1,423.4	1,163.4	260.03	5.474	
14,600.0	7,702.8	14,348.4	7,613.7	134.2	132.2	86.41	-6,808.1	-47.6	1,423.4	1,159.6	263.82	5.396	
14,700.0	7,703.0	14,448.4	7,614.0	136.1	134.1	86.41	-6,908.1	-47.6	1,423.4	1,155.8	267.61	5.319	
14,713.5	7,703.0	14,461.9	7,614.0	136.3	134.4	86.41	-6,921.6	-47.6	1,423.4	1,155.3	268.12	5.309	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-303 - Wellbore #1 - Plan #1 (10-8-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-56.0	56.0				
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-56.0	56.0	55.8	0.22	249.269	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-56.0	56.0	55.4	0.67	83.090	
300.0	300.0	300.0	300.0	0.6	0.6	-89.99	0.0	-56.0	56.0	54.9	1.12	49.854	
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-56.0	56.0	54.5	1.57	35.610	
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-56.0	56.0	54.0	2.02	27.697	
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-56.0	56.0	53.6	2.47	22.661	
700.0	700.0	700.0	700.0	1.5	1.5	-89.99	0.0	-56.0	56.0	53.1	2.92	19.175	
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-56.0	56.0	52.7	3.37	16.618	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-169.90	0.0	-56.0	57.7	53.9	3.81	15.157	
1,000.0	999.8	999.8	999.8	2.1	2.1	-170.72	0.0	-56.0	62.9	58.7	4.24	14.841	
1,100.0	1,099.5	1,099.5	1,099.5	2.3	2.4	-171.82	0.0	-56.0	71.5	66.9	4.67	15.324	
1,200.0	1,198.7	1,198.7	1,198.7	2.6	2.6	-172.98	0.0	-56.0	83.6	78.5	5.09	16.409	
1,300.0	1,297.5	1,300.8	1,300.8	2.9	2.8	-173.80	0.6	-54.4	97.5	92.0	5.51	17.682	
1,400.0	1,395.6	1,403.4	1,403.2	3.2	3.0	-174.08	2.5	-49.3	111.4	105.5	5.92	18.816	
1,500.0	1,493.1	1,506.5	1,505.9	3.6	3.3	-174.00	5.7	-40.7	125.4	119.1	6.34	19.789	
1,600.0	1,589.8	1,610.2	1,608.8	4.0	3.5	-173.65	10.3	-28.6	138.8	132.1	6.78	20.471	
1,700.0	1,686.4	1,713.9	1,711.1	4.5	3.8	-172.98	16.1	-13.0	149.2	142.0	7.26	20.553	
1,800.0	1,783.1	1,813.5	1,809.2	4.9	4.1	-172.29	22.1	3.2	158.4	150.6	7.75	20.434	
1,900.0	1,879.7	1,913.0	1,907.3	5.4	4.4	-171.67	28.1	19.3	167.5	159.3	8.25	20.303	
2,000.0	1,976.4	2,012.6	2,005.3	5.9	4.7	-171.11	34.1	35.5	176.7	167.9	8.76	20.168	
2,100.0	2,073.0	2,112.1	2,103.4	6.4	5.0	-170.61	40.2	51.6	185.9	176.6	9.28	20.029	
2,200.0	2,169.6	2,211.7	2,201.4	7.0	5.4	-170.16	46.2	67.8	195.1	185.3	9.81	19.890	
2,300.0	2,266.3	2,311.3	2,299.5	7.5	5.7	-169.75	52.2	83.9	204.3	194.0	10.34	19.752	
2,400.0	2,362.9	2,410.8	2,397.6	8.0	6.1	-169.37	58.3	100.1	213.6	202.7	10.89	19.618	
2,500.0	2,459.6	2,510.4	2,495.6	8.5	6.4	-169.02	64.3	116.2	222.8	211.4	11.43	19.488	
2,600.0	2,556.2	2,610.0	2,593.7	9.1	6.8	-168.70	70.3	132.4	232.0	220.1	11.98	19.363	
2,700.0	2,652.9	2,709.5	2,691.7	9.6	7.2	-168.41	76.3	148.5	241.3	228.8	12.54	19.242	
2,800.0	2,749.5	2,809.1	2,789.8	10.1	7.5	-168.14	82.4	164.7	250.6	237.5	13.10	19.127	
2,900.0	2,846.2	2,908.7	2,887.9	10.7	7.9	-167.89	88.4	180.8	259.8	246.2	13.66	19.016	
3,000.0	2,942.8	3,008.2	2,985.9	11.2	8.3	-167.65	94.4	197.0	269.1	254.9	14.23	18.910	
3,100.0	3,039.4	3,107.8	3,084.0	11.7	8.7	-167.43	100.4	213.1	278.4	263.6	14.80	18.809	
3,200.0	3,136.1	3,207.3	3,182.0	12.3	9.0	-167.22	106.5	229.3	287.6	272.3	15.37	18.712	
3,300.0	3,232.7	3,306.9	3,280.1	12.8	9.4	-167.03	112.5	245.4	296.9	281.0	15.95	18.620	
3,400.0	3,329.4	3,406.5	3,378.2	13.4	9.8	-166.85	118.5	261.6	306.2	289.7	16.52	18.532	
3,500.0	3,426.0	3,506.0	3,476.2	13.9	10.2	-166.68	124.5	277.7	315.5	298.4	17.10	18.447	
3,600.0	3,522.7	3,605.6	3,574.3	14.4	10.6	-166.52	130.6	293.9	324.8	307.1	17.68	18.367	
3,700.0	3,619.3	3,705.2	3,672.3	15.0	10.9	-166.37	136.6	310.0	334.1	315.8	18.26	18.290	
3,800.0	3,715.9	3,804.7	3,770.4	15.5	11.3	-166.22	142.6	326.2	343.4	324.5	18.85	18.216	
3,900.0	3,812.6	3,904.3	3,868.5	16.1	11.7	-166.09	148.7	342.3	352.7	333.2	19.43	18.146	
4,000.0	3,909.2	4,003.9	3,966.5	16.6	12.1	-165.96	154.7	358.5	361.9	341.9	20.02	18.079	
4,100.0	4,005.9	4,103.4	4,064.6	17.1	12.5	-165.84	160.7	374.6	371.2	350.6	20.61	18.014	
4,200.0	4,102.5	4,203.0	4,162.6	17.7	12.9	-165.72	166.7	390.8	380.5	359.3	21.20	17.952	
4,300.0	4,199.2	4,302.5	4,260.7	18.2	13.3	-165.61	172.8	406.9	389.8	368.1	21.79	17.893	
4,400.0	4,295.8	4,402.1	4,358.8	18.8	13.6	-165.50	178.8	423.1	399.2	376.8	22.38	17.836	
4,500.0	4,392.5	4,501.7	4,456.8	19.3	14.0	-165.40	184.8	439.2	408.5	385.5	22.97	17.781	
4,600.0	4,489.1	4,601.2	4,554.9	19.9	14.4	-165.31	190.8	455.4	417.8	394.2	23.56	17.728	
4,700.0	4,585.7	4,700.8	4,652.9	20.4	14.8	-165.21	196.9	471.5	427.1	402.9	24.16	17.678	
4,800.0	4,682.4	4,800.4	4,751.0	21.0	15.2	-165.13	202.9	487.7	436.4	411.6	24.75	17.629	
4,900.0	4,779.0	4,899.9	4,849.1	21.5	15.6	-165.04	208.9	503.8	445.7	420.3	25.35	17.583	
5,000.0	4,875.7	4,999.5	4,947.1	22.1	16.0	-164.96	214.9	520.0	455.0	429.0	25.94	17.537	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-303 - Wellbore #1 - Plan #1 (10-8-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,972.3	5,099.1	5,045.2	22.6	16.4	-164.88	221.0	536.1	464.3	437.8	26.54	17.494	
5,200.0	5,069.0	5,198.6	5,143.2	23.1	16.8	-164.81	227.0	552.3	473.6	446.5	27.14	17.452	
5,300.0	5,165.6	5,298.2	5,241.3	23.7	17.1	-164.74	233.0	568.4	482.9	455.2	27.74	17.412	
5,400.0	5,262.2	5,392.9	5,334.6	24.2	17.5	-164.68	238.7	583.6	492.4	464.1	28.31	17.393	
5,500.0	5,358.9	5,478.7	5,419.5	24.8	17.7	-164.73	243.1	595.5	504.1	475.3	28.80	17.500	
5,600.0	5,455.5	5,563.9	5,504.1	25.3	18.0	-164.90	246.7	604.9	518.4	489.1	29.26	17.716	
5,700.0	5,552.2	5,648.3	5,588.2	25.9	18.1	-165.17	249.3	611.9	535.4	505.7	29.69	18.034	
5,800.0	5,648.8	5,731.8	5,671.5	26.4	18.3	-165.53	251.0	616.6	555.0	524.9	30.08	18.450	
5,900.0	5,745.5	5,814.3	5,754.0	27.0	18.4	-165.97	251.9	618.9	577.2	546.8	30.45	18.956	
6,000.0	5,842.1	5,902.5	5,842.1	27.5	18.5	-166.49	252.0	619.3	601.8	571.0	30.81	19.532	
6,100.0	5,938.7	5,999.1	5,938.7	28.1	18.7	-167.04	252.0	619.3	626.9	595.7	31.20	20.095	
6,200.0	6,035.4	6,095.7	6,035.4	28.6	18.8	-167.55	252.0	619.3	652.0	620.4	31.59	20.639	
6,300.0	6,132.3	6,192.6	6,132.3	29.1	19.0	-168.07	252.0	619.3	676.3	644.3	32.01	21.130	
6,400.0	6,229.9	6,290.2	6,229.9	29.5	19.1	-168.53	252.0	619.3	697.5	665.1	32.40	21.530	
6,500.0	6,328.2	6,388.6	6,328.2	29.8	19.3	-168.89	252.0	619.3	715.3	682.6	32.76	21.836	
6,600.0	6,427.1	6,487.5	6,427.1	30.1	19.4	-169.16	252.0	619.3	729.8	696.7	33.09	22.053	
6,700.0	6,526.5	6,586.8	6,526.5	30.3	19.6	-169.37	252.0	619.3	740.9	707.5	33.40	22.185	
6,800.0	6,626.2	6,686.5	6,626.2	30.5	19.8	-169.51	252.0	619.3	748.6	714.9	33.67	22.235	
6,900.0	6,726.1	6,786.4	6,726.1	30.6	19.9	-169.58	252.0	619.3	752.8	718.9	33.90	22.206	
7,000.0	6,826.1	6,886.4	6,826.1	30.7	20.1	-90.00	252.0	619.3	753.8	719.6	34.15	22.072	
7,100.0	6,926.1	6,986.4	6,926.1	30.8	20.2	-90.00	252.0	619.3	753.8	719.2	34.51	21.840	
7,200.0	7,025.8	7,086.4	7,025.8	30.9	20.4	90.00	246.0	619.3	753.8	719.0	34.79	21.666	
7,300.0	7,123.9	7,186.4	7,123.9	31.0	20.4	90.00	227.0	619.3	753.8	718.8	34.96	21.562	
7,400.0	7,218.7	7,286.4	7,218.7	31.0	20.5	90.00	195.4	619.3	753.8	718.7	35.05	21.508	
7,500.0	7,308.6	7,386.4	7,308.6	31.0	20.5	90.00	151.7	619.3	753.8	718.7	35.10	21.474	
7,600.0	7,391.9	7,486.4	7,391.9	31.0	20.5	90.00	96.6	619.3	753.8	718.6	35.19	21.423	
7,700.0	7,467.4	7,586.4	7,467.4	31.0	20.5	90.00	31.1	619.3	753.8	718.4	35.37	21.311	
7,800.0	7,533.7	7,686.4	7,533.7	31.0	20.6	90.00	-43.7	619.3	753.8	718.0	35.73	21.099	
7,891.9	7,585.5	7,778.3	7,585.5	31.1	20.7	90.00	-119.5	619.3	753.8	717.5	36.27	20.784	
7,900.0	7,589.7	7,786.4	7,589.7	31.1	20.7	90.00	-126.5	619.3	753.8	717.4	36.32	20.753	
8,000.0	7,634.3	7,886.4	7,634.3	31.3	20.9	90.00	-215.9	619.3	753.8	716.6	37.20	20.261	
8,100.0	7,667.0	7,986.4	7,667.0	31.5	21.3	90.00	-310.3	619.3	753.8	715.4	38.40	19.631	
8,200.0	7,687.0	8,086.4	7,687.0	31.8	21.9	90.00	-408.2	619.3	753.8	713.9	39.90	18.893	
8,300.0	7,694.0	8,186.4	7,694.0	32.2	22.6	90.00	-507.9	619.3	753.8	712.1	41.67	18.087	
8,400.0	7,694.2	8,286.4	7,694.2	32.8	23.5	90.00	-607.9	619.3	753.8	710.1	43.71	17.246	
8,500.0	7,694.3	8,386.4	7,694.3	33.4	24.5	90.00	-707.9	619.3	753.8	707.8	45.96	16.400	
8,600.0	7,694.5	8,486.4	7,694.5	34.2	25.7	90.00	-807.9	619.3	753.8	705.3	48.42	15.568	
8,700.0	7,694.6	8,586.4	7,694.6	35.0	26.9	90.00	-907.9	619.3	753.8	702.7	51.04	14.768	
8,800.0	7,694.7	8,686.4	7,694.7	35.9	28.2	90.00	-1,007.9	619.3	753.8	700.0	53.81	14.008	
8,900.0	7,694.9	8,786.4	7,694.9	37.0	29.6	90.00	-1,107.9	619.3	753.8	697.1	56.70	13.293	
9,000.0	7,695.0	8,886.4	7,695.0	38.1	31.0	90.00	-1,207.9	619.3	753.8	694.1	59.70	12.626	
9,100.0	7,695.2	8,986.4	7,695.2	39.2	32.5	90.00	-1,307.9	619.3	753.8	691.0	62.79	12.005	
9,200.0	7,695.3	9,086.4	7,695.3	40.5	34.1	90.00	-1,407.9	619.3	753.8	687.8	65.95	11.429	
9,300.0	7,695.4	9,186.4	7,695.4	41.8	35.6	90.00	-1,507.9	619.3	753.8	684.6	69.19	10.895	
9,400.0	7,695.6	9,286.4	7,695.6	43.1	37.2	90.00	-1,607.9	619.3	753.8	681.3	72.48	10.400	
9,500.0	7,695.7	9,386.4	7,695.7	44.5	38.9	90.00	-1,707.9	619.3	753.8	677.9	75.82	9.941	
9,600.0	7,695.9	9,486.4	7,695.9	45.9	40.5	90.00	-1,807.9	619.3	753.8	674.6	79.21	9.516	
9,700.0	7,696.0	9,586.4	7,696.0	47.4	42.2	90.00	-1,907.9	619.3	753.8	671.1	82.63	9.122	
9,800.0	7,696.1	9,686.4	7,696.1	48.9	43.9	90.00	-2,007.9	619.3	753.8	667.7	86.09	8.755	
9,900.0	7,696.3	9,786.4	7,696.3	50.4	45.6	90.00	-2,107.9	619.3	753.8	664.2	89.58	8.414	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-303 - Wellbore #1 - Plan #1 (10-8-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,696.4	9,886.4	7,696.4	52.0	47.3	90.00	-2,207.9	619.3	753.8	660.7	93.10	8.097	
10,100.0	7,696.6	9,986.4	7,696.6	53.6	49.1	90.00	-2,307.9	619.3	753.8	657.1	96.64	7.800	
10,200.0	7,696.7	10,086.4	7,696.7	55.2	50.8	90.00	-2,407.9	619.3	753.8	653.6	100.20	7.523	
10,300.0	7,696.8	10,186.4	7,696.8	56.8	52.6	90.00	-2,507.9	619.3	753.8	650.0	103.78	7.263	
10,400.0	7,697.0	10,286.4	7,697.0	58.4	54.4	90.00	-2,607.9	619.3	753.8	646.4	107.38	7.020	
10,500.0	7,697.1	10,386.4	7,697.1	60.1	56.2	90.00	-2,707.9	619.3	753.8	642.8	110.99	6.791	
10,600.0	7,697.3	10,486.4	7,697.3	61.8	58.0	90.00	-2,807.9	619.3	753.8	639.1	114.62	6.576	
10,700.0	7,697.4	10,586.4	7,697.4	63.5	59.8	90.00	-2,907.9	619.3	753.8	635.5	118.26	6.374	
10,800.0	7,697.5	10,686.4	7,697.5	65.2	61.6	90.00	-3,007.9	619.3	753.8	631.9	121.91	6.183	
10,900.0	7,697.7	10,786.4	7,697.7	66.9	63.4	90.00	-3,107.9	619.3	753.8	628.2	125.57	6.003	
11,000.0	7,697.8	10,886.4	7,697.8	68.6	65.2	90.00	-3,207.9	619.3	753.8	624.5	129.24	5.832	
11,100.0	7,698.0	10,986.4	7,697.9	70.3	67.0	90.00	-3,307.9	619.3	753.8	620.8	132.92	5.671	
11,200.0	7,698.1	11,086.4	7,698.1	72.1	68.9	90.00	-3,407.9	619.3	753.8	617.1	136.61	5.517	
11,300.0	7,698.2	11,186.4	7,698.2	73.8	70.7	90.00	-3,507.9	619.3	753.8	613.4	140.31	5.372	
11,400.0	7,698.4	11,286.4	7,698.4	75.6	72.5	90.00	-3,607.9	619.3	753.8	609.7	144.01	5.234	
11,500.0	7,698.5	11,386.4	7,698.5	77.4	74.4	90.00	-3,707.9	619.3	753.8	606.0	147.73	5.102	
11,600.0	7,698.7	11,486.4	7,698.6	79.1	76.2	90.00	-3,807.9	619.3	753.8	602.3	151.44	4.977	
11,700.0	7,698.8	11,586.4	7,698.8	80.9	78.1	90.00	-3,907.9	619.3	753.8	598.6	155.16	4.858	
11,800.0	7,698.9	11,686.4	7,698.9	82.7	79.9	90.00	-4,007.9	619.3	753.8	594.9	158.89	4.744	
11,900.0	7,699.1	11,786.4	7,699.1	84.5	81.8	90.00	-4,107.9	619.3	753.8	591.1	162.62	4.635	
12,000.0	7,699.2	11,886.4	7,699.2	86.3	83.6	90.00	-4,207.9	619.3	753.8	587.4	166.36	4.531	
12,100.0	7,699.4	11,986.4	7,699.3	88.1	85.5	90.00	-4,307.9	619.3	753.8	583.7	170.10	4.431	
12,200.0	7,699.5	12,086.4	7,699.5	89.9	87.4	90.00	-4,407.9	619.3	753.8	579.9	173.84	4.336	
12,300.0	7,699.6	12,186.4	7,699.6	91.7	89.2	90.00	-4,507.9	619.3	753.8	576.2	177.59	4.244	
12,400.0	7,699.8	12,286.4	7,699.8	93.6	91.1	90.00	-4,607.9	619.3	753.8	572.4	181.34	4.157	
12,500.0	7,699.9	12,386.4	7,699.9	95.4	93.0	90.00	-4,707.9	619.3	753.8	568.7	185.10	4.072	
12,600.0	7,700.0	12,486.4	7,700.0	97.2	94.8	90.00	-4,807.9	619.3	753.8	564.9	188.86	3.991	
12,700.0	7,700.2	12,586.4	7,700.2	99.0	96.7	90.00	-4,907.9	619.3	753.8	561.1	192.62	3.913	
12,800.0	7,700.3	12,686.4	7,700.3	100.9	98.6	90.00	-5,007.9	619.3	753.8	557.4	196.38	3.838	
12,900.0	7,700.5	12,786.4	7,700.5	102.7	100.5	90.00	-5,107.9	619.3	753.8	553.6	200.15	3.766	
13,000.0	7,700.6	12,886.4	7,700.6	104.5	102.3	90.00	-5,207.9	619.3	753.8	549.8	203.91	3.696	
13,100.0	7,700.7	12,986.4	7,700.7	106.4	104.2	90.00	-5,307.9	619.3	753.8	546.1	207.68	3.629	
13,200.0	7,700.9	13,086.4	7,700.9	108.2	106.1	90.00	-5,407.9	619.3	753.8	542.3	211.46	3.565	
13,300.0	7,701.0	13,186.4	7,701.0	110.1	108.0	90.00	-5,507.9	619.3	753.8	538.5	215.23	3.502	
13,400.0	7,701.2	13,286.4	7,701.2	111.9	109.9	90.00	-5,607.9	619.3	753.8	534.8	219.01	3.442	
13,500.0	7,701.3	13,386.4	7,701.3	113.8	111.7	90.00	-5,707.9	619.3	753.8	531.0	222.79	3.383	
13,600.0	7,701.4	13,486.4	7,701.4	115.6	113.6	90.00	-5,807.9	619.3	753.8	527.2	226.57	3.327	
13,700.0	7,701.6	13,586.4	7,701.6	117.5	115.5	90.00	-5,907.9	619.3	753.8	523.4	230.35	3.272	
13,800.0	7,701.7	13,686.4	7,701.7	119.3	117.4	90.00	-6,007.9	619.3	753.8	519.6	234.13	3.219	
13,900.0	7,701.9	13,786.4	7,701.9	121.2	119.3	90.00	-6,107.9	619.3	753.8	515.8	237.92	3.168	
14,000.0	7,702.0	13,886.4	7,702.0	123.0	121.2	90.00	-6,207.9	619.3	753.8	512.1	241.70	3.119	
14,100.0	7,702.1	13,986.4	7,702.1	124.9	123.1	90.00	-6,307.9	619.3	753.8	508.3	245.49	3.070	
14,200.0	7,702.3	14,086.4	7,702.3	126.8	125.0	90.00	-6,407.9	619.3	753.8	504.5	249.28	3.024	
14,300.0	7,702.4	14,186.4	7,702.4	128.6	126.9	90.00	-6,507.9	619.3	753.8	500.7	253.07	2.978	
14,400.0	7,702.6	14,286.4	7,702.6	130.5	128.7	90.00	-6,607.9	619.3	753.8	496.9	256.86	2.934	
14,500.0	7,702.7	14,386.4	7,702.7	132.3	130.6	90.00	-6,707.9	619.3	753.8	493.1	260.65	2.892	
14,600.0	7,702.8	14,486.4	7,702.8	134.2	132.5	90.00	-6,807.9	619.3	753.8	489.3	264.45	2.850	
14,700.0	7,703.0	14,586.4	7,703.0	136.1	134.4	90.00	-6,907.9	619.3	753.8	485.5	268.24	2.810	
14,713.5	7,703.0	14,599.9	7,703.0	136.3	134.7	90.00	-6,921.4	619.3	753.8	485.0	268.76	2.805 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-343 - Wellbore #1 - Plan #2 (10-8-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-142.9	142.9				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-142.9	142.9	142.6	0.22	635.636	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-142.9	142.9	142.2	0.67	211.879	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-142.9	142.9	141.7	1.12	127.127	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-142.9	142.9	141.3	1.57	90.805	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-142.9	142.9	140.8	2.02	70.626	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-142.9	142.9	140.4	2.47	57.785	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	0.0	-142.9	142.9	139.9	2.92	48.895	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-142.9	142.9	139.5	3.37	42.376	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-169.72	0.0	-142.9	144.6	140.8	3.81	37.951	
1,000.0	999.8	999.8	999.8	2.1	2.1	-170.06	0.0	-142.9	149.7	145.5	4.24	35.328	
1,100.0	1,099.5	1,099.5	1,099.5	2.3	2.4	-170.58	0.0	-142.9	158.3	153.7	4.67	33.924	
1,200.0	1,198.7	1,198.7	1,198.7	2.6	2.6	-171.21	0.0	-142.9	170.4	165.3	5.09	33.438	
1,300.0	1,297.5	1,297.5	1,297.5	2.9	2.8	-171.90	0.0	-142.9	185.8	180.3	5.52	33.661	
1,400.0	1,395.6	1,395.6	1,395.6	3.2	3.0	-172.61	0.0	-142.9	204.8	198.8	5.95	34.440	
1,500.0	1,493.1	1,493.1	1,493.1	3.6	3.2	-173.28	0.0	-142.9	227.1	220.7	6.37	35.662	
1,600.0	1,589.8	1,589.8	1,589.8	4.0	3.5	-173.93	0.0	-142.9	252.3	245.5	6.81	37.059	
1,700.0	1,686.4	1,681.4	1,681.4	4.5	3.7	-174.27	0.8	-143.7	278.6	271.4	7.26	38.395	
1,800.0	1,783.1	1,771.5	1,771.4	4.9	3.9	-174.13	3.7	-146.5	306.9	299.2	7.71	39.807	
1,900.0	1,879.7	1,860.3	1,860.0	5.4	4.1	-173.62	8.4	-151.1	337.1	329.0	8.17	41.276	
2,000.0	1,976.4	1,949.6	1,948.8	5.9	4.3	-172.86	15.2	-157.7	369.2	360.6	8.64	42.752	
2,100.0	2,073.0	2,044.0	2,042.5	6.4	4.5	-172.08	22.9	-165.2	401.9	392.8	9.12	44.087	
2,200.0	2,169.6	2,138.4	2,136.3	7.0	4.7	-171.42	30.5	-172.8	434.6	425.0	9.60	45.261	
2,300.0	2,266.3	2,232.8	2,230.1	7.5	5.0	-170.86	38.2	-180.3	467.4	457.3	10.10	46.296	
2,400.0	2,362.9	2,327.1	2,323.8	8.0	5.2	-170.37	45.9	-187.8	500.3	489.7	10.60	47.203	
2,500.0	2,459.6	2,421.5	2,417.6	8.5	5.5	-169.93	53.6	-195.3	533.1	522.0	11.10	48.018	
2,600.0	2,556.2	2,515.9	2,511.3	9.1	5.7	-169.55	61.3	-202.9	566.0	554.4	11.61	48.742	
2,700.0	2,652.9	2,610.3	2,605.1	9.6	6.0	-169.21	69.0	-210.4	598.9	586.8	12.13	49.390	
2,800.0	2,749.5	2,704.7	2,698.9	10.1	6.2	-168.91	76.7	-217.9	631.8	619.2	12.64	49.974	
2,900.0	2,846.2	2,799.0	2,792.6	10.7	6.5	-168.63	84.4	-225.4	664.7	651.6	13.16	50.501	
3,000.0	2,942.8	2,893.4	2,886.4	11.2	6.8	-168.39	92.1	-233.0	697.7	684.0	13.69	50.978	
3,100.0	3,039.4	2,987.8	2,980.2	11.7	7.0	-168.16	99.8	-240.5	730.6	716.4	14.21	51.412	
3,200.0	3,136.1	3,082.2	3,073.9	12.3	7.3	-167.95	107.4	-248.0	763.6	748.9	14.74	51.808	
3,300.0	3,232.7	3,176.5	3,167.7	12.8	7.6	-167.76	115.1	-255.5	796.6	781.3	15.27	52.170	
3,400.0	3,329.4	3,270.9	3,261.4	13.4	7.8	-167.59	122.8	-263.1	829.6	813.8	15.80	52.503	
3,500.0	3,426.0	3,365.3	3,355.2	13.9	8.1	-167.43	130.5	-270.6	862.5	846.2	16.33	52.809	
3,600.0	3,522.7	3,459.7	3,449.0	14.4	8.4	-167.28	138.2	-278.1	895.5	878.7	16.87	53.091	
3,700.0	3,619.3	3,554.0	3,542.7	15.0	8.7	-167.14	145.9	-285.6	928.5	911.1	17.40	53.353	
3,800.0	3,715.9	3,648.4	3,636.5	15.5	8.9	-167.01	153.6	-293.2	961.5	943.6	17.94	53.595	
3,900.0	3,812.6	3,742.8	3,730.2	16.1	9.2	-166.89	161.3	-300.7	994.5	976.1	18.48	53.820	
4,000.0	3,909.2	3,837.2	3,824.0	16.6	9.5	-166.78	169.0	-308.2	1,027.5	1,008.5	19.02	54.030	
4,100.0	4,005.9	3,931.5	3,917.8	17.1	9.8	-166.67	176.7	-315.7	1,060.6	1,041.0	19.56	54.225	
4,200.0	4,102.5	4,025.9	4,011.5	17.7	10.1	-166.57	184.4	-323.3	1,093.6	1,073.5	20.10	54.408	
4,300.0	4,199.2	4,120.3	4,105.3	18.2	10.3	-166.48	192.0	-330.8	1,126.6	1,105.9	20.64	54.579	
4,400.0	4,295.8	4,214.7	4,199.1	18.8	10.6	-166.39	199.7	-338.3	1,159.6	1,138.4	21.18	54.739	
4,500.0	4,392.5	4,309.1	4,292.8	19.3	10.9	-166.31	207.4	-345.8	1,192.6	1,170.9	21.73	54.890	
4,600.0	4,489.1	4,403.4	4,386.6	19.9	11.2	-166.23	215.1	-353.4	1,225.7	1,203.4	22.27	55.032	
4,700.0	4,585.7	4,497.8	4,480.3	20.4	11.5	-166.16	222.8	-360.9	1,258.7	1,235.9	22.82	55.165	
4,800.0	4,682.4	4,592.2	4,574.1	21.0	11.7	-166.08	230.5	-368.4	1,291.7	1,268.3	23.36	55.291	
4,900.0	4,779.0	4,686.6	4,667.9	21.5	12.0	-166.02	238.2	-375.9	1,324.7	1,300.8	23.91	55.409	
5,000.0	4,875.7	4,828.5	4,809.2	22.1	12.3	-166.02	247.4	-385.0	1,356.2	1,331.7	24.49	55.373	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-343 - Wellbore #1 - Plan #2 (10-8-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,972.3	4,976.5	4,957.1	22.6	12.6	-166.24	251.8	-389.2	1,384.1	1,359.1	25.04	55.272	
5,200.0	5,069.0	5,088.4	5,069.0	23.1	12.8	-166.52	252.0	-389.5	1,409.3	1,383.7	25.52	55.218	
5,300.0	5,165.6	5,185.1	5,165.6	23.7	13.0	-166.75	252.0	-389.5	1,434.3	1,408.3	26.00	55.167	
5,400.0	5,262.2	5,281.7	5,262.2	24.2	13.2	-166.99	252.0	-389.5	1,459.4	1,432.9	26.48	55.113	
5,500.0	5,358.9	5,378.3	5,358.9	24.8	13.4	-167.21	252.0	-389.5	1,484.5	1,457.5	26.96	55.061	
5,600.0	5,455.5	5,475.0	5,455.5	25.3	13.5	-167.42	252.0	-389.5	1,509.6	1,482.1	27.44	55.011	
5,700.0	5,552.2	5,571.6	5,552.2	25.9	13.7	-167.63	252.0	-389.5	1,534.7	1,506.8	27.92	54.963	
5,800.0	5,648.8	5,668.3	5,648.8	26.4	13.9	-167.83	252.0	-389.5	1,559.8	1,531.4	28.40	54.915	
5,900.0	5,745.5	5,764.9	5,745.5	27.0	14.1	-168.03	252.0	-389.5	1,585.0	1,556.1	28.89	54.869	
6,000.0	5,842.1	5,861.6	5,842.1	27.5	14.3	-168.22	252.0	-389.5	1,610.2	1,580.8	29.37	54.825	
6,100.0	5,938.7	5,958.2	5,938.7	28.1	14.5	-168.40	252.0	-389.5	1,635.3	1,605.5	29.85	54.782	
6,200.0	6,035.4	6,054.8	6,035.4	28.6	14.7	-168.58	252.0	-389.5	1,660.6	1,630.2	30.34	54.739	
6,300.0	6,132.3	6,151.7	6,132.3	29.1	14.9	-168.82	252.0	-389.5	1,685.0	1,654.1	30.88	54.561	
6,400.0	6,229.9	6,249.3	6,229.9	29.5	15.1	-169.04	252.0	-389.5	1,706.2	1,674.8	31.40	54.331	
6,500.0	6,328.2	6,347.7	6,328.2	29.8	15.3	-169.22	252.0	-389.5	1,724.0	1,692.2	31.89	54.070	
6,600.0	6,427.1	6,446.6	6,427.1	30.1	15.5	-169.37	252.0	-389.5	1,738.5	1,706.2	32.33	53.778	
6,700.0	6,526.5	6,545.9	6,526.5	30.3	15.7	-169.48	252.0	-389.5	1,749.6	1,716.9	32.73	53.458	
6,800.0	6,626.2	6,645.6	6,626.2	30.5	15.9	-169.55	252.0	-389.5	1,757.3	1,724.2	33.09	53.110	
6,900.0	6,726.1	6,745.5	6,726.1	30.6	16.1	-169.59	252.0	-389.5	1,761.6	1,728.2	33.41	52.734	
7,000.0	6,826.1	6,845.5	6,826.1	30.7	16.3	-90.00	252.0	-389.5	1,762.5	1,728.8	33.71	52.281	
7,100.0	6,926.1	6,945.5	6,926.1	30.8	16.5	-90.00	252.0	-389.5	1,762.5	1,728.4	34.09	51.702	
7,200.0	7,025.8	7,045.6	7,026.0	30.9	16.7	90.07	248.1	-389.5	1,762.5	1,728.1	34.39	51.244	
7,300.0	7,123.9	7,146.0	7,124.9	31.0	16.8	90.15	231.4	-389.5	1,762.5	1,727.9	34.57	50.978	
7,400.0	7,218.7	7,246.7	7,221.1	31.0	16.8	90.22	201.7	-389.5	1,762.5	1,727.9	34.67	50.838	
7,500.0	7,308.6	7,347.7	7,312.8	31.0	16.8	90.29	159.6	-389.5	1,762.5	1,727.8	34.73	50.755	
7,600.0	7,391.9	7,449.0	7,398.4	31.0	16.9	90.36	105.5	-389.5	1,762.5	1,727.7	34.81	50.638	
7,700.0	7,467.4	7,550.6	7,476.3	31.0	16.9	90.42	40.4	-389.5	1,762.6	1,727.6	34.98	50.382	
7,800.0	7,533.7	7,652.4	7,545.0	31.0	16.9	90.47	-34.6	-389.5	1,762.6	1,727.2	35.34	49.880	
7,900.0	7,589.7	7,754.4	7,603.3	31.1	17.0	90.52	-118.3	-389.5	1,762.6	1,726.6	35.93	49.050	
8,000.0	7,634.3	7,856.6	7,649.9	31.3	17.5	90.55	-209.1	-389.5	1,762.6	1,725.8	36.83	47.855	
8,100.0	7,667.0	7,959.0	7,684.1	31.5	18.1	90.58	-305.5	-389.5	1,762.6	1,724.5	38.06	46.315	
8,200.0	7,687.0	8,061.4	7,705.1	31.8	19.0	90.59	-405.7	-389.5	1,762.6	1,723.0	39.60	44.507	
8,300.0	7,694.0	8,163.9	7,712.5	32.2	19.9	90.60	-507.8	-389.5	1,762.6	1,721.2	41.44	42.539	
8,400.0	7,694.2	8,264.0	7,712.6	32.8	21.0	90.60	-607.9	-389.5	1,762.6	1,719.1	43.50	40.520	
8,500.0	7,694.3	8,364.0	7,712.7	33.4	22.2	90.60	-707.9	-389.5	1,762.6	1,716.8	45.78	38.504	
8,600.0	7,694.5	8,464.0	7,712.7	34.2	23.5	90.59	-807.9	-389.5	1,762.6	1,714.3	48.25	36.529	
8,700.0	7,694.6	8,564.0	7,712.8	35.0	24.9	90.59	-907.9	-389.5	1,762.6	1,711.7	50.89	34.633	
8,800.0	7,694.7	8,664.0	7,712.9	35.9	26.3	90.59	-1,007.9	-389.5	1,762.6	1,708.9	53.68	32.836	
8,900.0	7,694.9	8,764.0	7,712.9	37.0	27.8	90.59	-1,107.9	-389.5	1,762.6	1,706.0	56.59	31.148	
9,000.0	7,695.0	8,864.0	7,713.0	38.1	29.3	90.58	-1,207.9	-389.5	1,762.6	1,703.0	59.60	29.574	
9,100.0	7,695.2	8,964.0	7,713.1	39.2	30.9	90.58	-1,307.9	-389.5	1,762.6	1,699.9	62.70	28.111	
9,200.0	7,695.3	9,064.0	7,713.1	40.5	32.5	90.58	-1,407.9	-389.5	1,762.6	1,696.7	65.88	26.755	
9,300.0	7,695.4	9,164.0	7,713.2	41.8	34.2	90.58	-1,507.9	-389.5	1,762.6	1,693.5	69.12	25.500	
9,400.0	7,695.6	9,264.0	7,713.3	43.1	35.8	90.58	-1,607.9	-389.5	1,762.6	1,690.2	72.42	24.337	
9,500.0	7,695.7	9,364.0	7,713.4	44.5	37.5	90.57	-1,707.9	-389.5	1,762.6	1,686.8	75.77	23.261	
9,600.0	7,695.9	9,464.0	7,713.4	45.9	39.3	90.57	-1,807.9	-389.5	1,762.6	1,683.4	79.17	22.264	
9,700.0	7,696.0	9,564.0	7,713.5	47.4	41.0	90.57	-1,907.9	-389.5	1,762.6	1,680.0	82.60	21.339	
9,800.0	7,696.1	9,664.0	7,713.6	48.9	42.7	90.57	-2,007.9	-389.5	1,762.6	1,676.5	86.07	20.479	
9,900.0	7,696.3	9,764.0	7,713.6	50.4	44.5	90.56	-2,107.9	-389.5	1,762.6	1,673.0	89.56	19.680	
10,000.0	7,696.4	9,864.0	7,713.7	52.0	46.3	90.56	-2,207.9	-389.5	1,762.6	1,669.5	93.08	18.936	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (10-8-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32S Pad Sec.32-T1N-R67W - Jacobucci 32S-343 - Wellbore #1 - Plan #2 (10-8-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	7,696.6	9,964.0	7,713.8	53.6	48.1	90.56	-2,307.9	-389.5	1,762.6	1,666.0	96.63	18.241	
10,200.0	7,696.7	10,064.0	7,713.8	55.2	49.8	90.56	-2,407.9	-389.5	1,762.6	1,662.4	100.20	17.592	
10,300.0	7,696.8	10,164.0	7,713.9	56.8	51.7	90.56	-2,507.9	-389.5	1,762.6	1,658.8	103.78	16.984	
10,400.0	7,697.0	10,264.0	7,714.0	58.4	53.5	90.55	-2,607.9	-389.5	1,762.6	1,655.2	107.38	16.414	
10,500.0	7,697.1	10,364.0	7,714.1	60.1	55.3	90.55	-2,707.9	-389.5	1,762.6	1,651.6	111.00	15.879	
10,600.0	7,697.3	10,464.0	7,714.1	61.8	57.1	90.55	-2,807.9	-389.5	1,762.6	1,648.0	114.63	15.376	
10,700.0	7,697.4	10,564.0	7,714.2	63.5	58.9	90.55	-2,907.9	-389.5	1,762.6	1,644.3	118.27	14.903	
10,800.0	7,697.5	10,664.0	7,714.3	65.2	60.8	90.54	-3,007.9	-389.5	1,762.6	1,640.7	121.93	14.456	
10,900.0	7,697.7	10,764.0	7,714.3	66.9	62.6	90.54	-3,107.9	-389.5	1,762.6	1,637.0	125.59	14.034	
11,000.0	7,697.8	10,864.0	7,714.4	68.6	64.5	90.54	-3,207.9	-389.5	1,762.6	1,633.3	129.27	13.635	
11,100.0	7,698.0	10,964.0	7,714.5	70.3	66.3	90.54	-3,307.9	-389.5	1,762.6	1,629.6	132.95	13.257	
11,200.0	7,698.1	11,064.0	7,714.5	72.1	68.2	90.53	-3,407.9	-389.5	1,762.6	1,625.9	136.65	12.899	
11,300.0	7,698.2	11,164.0	7,714.6	73.8	70.0	90.53	-3,507.9	-389.5	1,762.6	1,622.2	140.34	12.559	
11,400.0	7,698.4	11,264.0	7,714.7	75.6	71.9	90.53	-3,607.9	-389.5	1,762.6	1,618.5	144.05	12.236	
11,500.0	7,698.5	11,364.0	7,714.8	77.4	73.7	90.53	-3,707.9	-389.5	1,762.6	1,614.8	147.76	11.928	
11,600.0	7,698.7	11,464.0	7,714.8	79.1	75.6	90.53	-3,807.9	-389.5	1,762.6	1,611.1	151.48	11.636	
11,700.0	7,698.8	11,564.0	7,714.9	80.9	77.5	90.52	-3,907.9	-389.5	1,762.6	1,607.4	155.20	11.356	
11,800.0	7,698.9	11,664.0	7,715.0	82.7	79.3	90.52	-4,007.9	-389.5	1,762.6	1,603.6	158.93	11.090	
11,900.0	7,699.1	11,764.0	7,715.0	84.5	81.2	90.52	-4,107.9	-389.5	1,762.6	1,599.9	162.67	10.836	
12,000.0	7,699.2	11,864.0	7,715.1	86.3	83.1	90.52	-4,207.9	-389.5	1,762.6	1,596.2	166.40	10.592	
12,100.0	7,699.4	11,964.0	7,715.2	88.1	85.0	90.51	-4,307.9	-389.5	1,762.6	1,592.4	170.15	10.359	
12,200.0	7,699.5	12,064.0	7,715.2	89.9	86.8	90.51	-4,407.9	-389.5	1,762.6	1,588.7	173.89	10.136	
12,300.0	7,699.6	12,164.0	7,715.3	91.7	88.7	90.51	-4,507.9	-389.5	1,762.6	1,584.9	177.64	9.922	
12,400.0	7,699.8	12,264.0	7,715.4	93.6	90.6	90.51	-4,607.9	-389.5	1,762.6	1,581.2	181.39	9.717	
12,500.0	7,699.9	12,364.0	7,715.4	95.4	92.5	90.51	-4,707.9	-389.5	1,762.6	1,577.4	185.15	9.520	
12,600.0	7,700.0	12,464.0	7,715.5	97.2	94.4	90.50	-4,807.9	-389.5	1,762.6	1,573.7	188.91	9.330	
12,700.0	7,700.2	12,564.0	7,715.6	99.0	96.2	90.50	-4,907.9	-389.5	1,762.6	1,569.9	192.67	9.148	
12,800.0	7,700.3	12,664.0	7,715.7	100.9	98.1	90.50	-5,007.9	-389.5	1,762.6	1,566.1	196.44	8.973	
12,900.0	7,700.5	12,764.0	7,715.7	102.7	100.0	90.50	-5,107.9	-389.5	1,762.6	1,562.4	200.20	8.804	
13,000.0	7,700.6	12,864.0	7,715.8	104.5	101.9	90.49	-5,207.9	-389.5	1,762.6	1,558.6	203.97	8.641	
13,100.0	7,700.7	12,964.0	7,715.9	106.4	103.8	90.49	-5,307.9	-389.5	1,762.6	1,554.8	207.74	8.484	
13,200.0	7,700.9	13,064.0	7,715.9	108.2	105.7	90.49	-5,407.9	-389.5	1,762.6	1,551.1	211.52	8.333	
13,300.0	7,701.0	13,164.0	7,716.0	110.1	107.6	90.49	-5,507.9	-389.5	1,762.6	1,547.3	215.29	8.187	
13,400.0	7,701.2	13,264.0	7,716.1	111.9	109.5	90.48	-5,607.9	-389.5	1,762.6	1,543.5	219.07	8.046	
13,500.0	7,701.3	13,364.0	7,716.1	113.8	111.3	90.48	-5,707.9	-389.5	1,762.6	1,539.7	222.85	7.909	
13,600.0	7,701.4	13,464.0	7,716.2	115.6	113.2	90.48	-5,807.9	-389.5	1,762.6	1,535.9	226.63	7.777	
13,700.0	7,701.6	13,564.0	7,716.3	117.5	115.1	90.48	-5,907.9	-389.5	1,762.6	1,532.2	230.41	7.650	
13,800.0	7,701.7	13,664.0	7,716.4	119.3	117.0	90.48	-6,007.9	-389.5	1,762.6	1,528.4	234.20	7.526	
13,900.0	7,701.9	13,764.0	7,716.4	121.2	118.9	90.47	-6,107.9	-389.5	1,762.6	1,524.6	237.98	7.406	
14,000.0	7,702.0	13,864.0	7,716.5	123.0	120.8	90.47	-6,207.9	-389.5	1,762.6	1,520.8	241.77	7.290	
14,100.0	7,702.1	13,964.0	7,716.6	124.9	122.7	90.47	-6,307.9	-389.5	1,762.6	1,517.0	245.56	7.178	
14,200.0	7,702.3	14,064.0	7,716.6	126.8	124.6	90.47	-6,407.9	-389.5	1,762.6	1,513.2	249.35	7.069	
14,300.0	7,702.4	14,164.0	7,716.7	128.6	126.5	90.46	-6,507.9	-389.5	1,762.6	1,509.4	253.14	6.963	
14,400.0	7,702.6	14,264.0	7,716.8	130.5	128.4	90.46	-6,607.9	-389.5	1,762.6	1,505.6	256.93	6.860	
14,500.0	7,702.7	14,364.0	7,716.8	132.3	130.3	90.46	-6,707.9	-389.5	1,762.6	1,501.8	260.72	6.760	
14,600.0	7,702.8	14,464.0	7,716.9	134.2	132.2	90.46	-6,807.9	-389.5	1,762.6	1,498.0	264.52	6.663	
14,700.0	7,703.0	14,564.0	7,717.0	136.1	134.1	90.46	-6,907.9	-389.5	1,762.6	1,494.2	268.31	6.569	
14,713.5	7,703.0	14,577.5	7,717.0	136.3	134.4	90.45	-6,921.4	-389.5	1,762.6	1,493.7	268.83	6.556	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	0.0	-28.0	28.0				
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-28.0	28.0	27.8	0.22	124.634	
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-28.0	28.0	27.3	0.67	41.545	
300.0	300.0	300.0	300.0	0.6	0.6	-89.98	0.0	-28.0	28.0	26.9	1.12	24.927	
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	0.0	-28.0	28.0	26.4	1.57	17.805	
500.0	500.0	500.0	500.0	1.0	1.0	-89.98	0.0	-28.0	28.0	26.0	2.02	13.848	
600.0	600.0	600.0	600.0	1.2	1.2	-89.98	0.0	-28.0	28.0	25.5	2.47	11.330	
700.0	700.0	700.0	700.0	1.5	1.5	-89.98	0.0	-28.0	28.0	25.1	2.92	9.587	
800.0	800.0	800.0	800.0	1.7	1.7	-89.98	0.0	-28.0	28.0	24.6	3.37	8.309	CC, ES
900.0	900.0	900.0	900.0	1.9	1.9	-170.19	0.0	-28.0	29.7	25.9	3.81	7.804	
1,000.0	999.8	999.8	999.8	2.1	2.1	-171.63	0.0	-28.0	34.9	30.7	4.24	8.234	
1,100.0	1,099.5	1,100.9	1,100.9	2.3	2.4	-172.87	0.4	-26.3	41.8	37.2	4.66	8.981	
1,200.0	1,198.7	1,202.3	1,202.1	2.6	2.6	-173.47	1.8	-21.1	48.7	43.7	5.06	9.625	
1,300.0	1,297.5	1,303.8	1,303.3	2.9	2.8	-173.68	3.9	-12.4	55.7	50.2	5.48	10.163	
1,400.0	1,395.6	1,405.7	1,404.3	3.2	3.0	-173.62	7.0	-0.2	62.5	56.6	5.89	10.610	
1,500.0	1,493.1	1,507.7	1,505.1	3.6	3.3	-173.37	11.0	15.5	69.4	63.1	6.32	10.978	
1,600.0	1,589.8	1,609.7	1,605.1	4.0	3.6	-172.95	15.8	34.6	75.7	68.9	6.78	11.166	
1,700.0	1,686.4	1,709.5	1,702.8	4.5	4.0	-172.47	20.8	54.6	81.1	73.8	7.27	11.156	
1,800.0	1,783.1	1,809.4	1,800.5	4.9	4.4	-172.05	25.8	74.5	86.5	78.8	7.78	11.129	
1,900.0	1,879.7	1,909.2	1,898.2	5.4	4.7	-171.67	30.8	94.4	92.0	83.7	8.29	11.097	
2,000.0	1,976.4	2,009.1	1,995.9	5.9	5.1	-171.34	35.9	114.4	97.4	88.6	8.81	11.055	
2,100.0	2,073.0	2,108.9	2,093.7	6.4	5.5	-171.05	40.9	134.3	102.8	93.5	9.34	11.010	
2,200.0	2,169.6	2,208.8	2,191.4	7.0	5.9	-170.78	45.9	154.2	108.3	98.4	9.88	10.962	
2,300.0	2,266.3	2,308.6	2,289.1	7.5	6.4	-170.54	50.9	174.1	113.7	103.3	10.42	10.914	
2,400.0	2,362.9	2,408.5	2,386.8	8.0	6.8	-170.32	56.0	194.1	119.1	108.2	10.96	10.866	
2,500.0	2,459.6	2,508.3	2,484.5	8.5	7.2	-170.12	61.0	214.0	124.6	113.1	11.51	10.819	
2,600.0	2,556.2	2,608.2	2,582.2	9.1	7.6	-169.94	66.0	233.9	130.0	117.9	12.07	10.773	
2,700.0	2,652.9	2,708.0	2,679.9	9.6	8.1	-169.77	71.0	253.9	135.4	122.8	12.62	10.729	
2,800.0	2,749.5	2,807.9	2,777.6	10.1	8.5	-169.61	76.0	273.8	140.9	127.7	13.18	10.686	
2,900.0	2,846.2	2,907.7	2,875.4	10.7	8.9	-169.47	81.1	293.7	146.3	132.6	13.75	10.644	
3,000.0	2,942.8	3,007.6	2,973.1	11.2	9.4	-169.34	86.1	313.7	151.8	137.5	14.31	10.604	
3,100.0	3,039.4	3,107.4	3,070.8	11.7	9.8	-169.21	91.1	333.6	157.2	142.3	14.88	10.566	
3,200.0	3,136.1	3,207.3	3,168.5	12.3	10.2	-169.10	96.1	353.5	162.7	147.2	15.45	10.529	
3,300.0	3,232.7	3,307.2	3,266.2	12.8	10.7	-168.99	101.1	373.5	168.1	152.1	16.02	10.494	
3,400.0	3,329.4	3,407.0	3,363.9	13.4	11.1	-168.89	106.2	393.4	173.6	157.0	16.59	10.460	
3,500.0	3,426.0	3,506.9	3,461.6	13.9	11.6	-168.79	111.2	413.3	179.0	161.8	17.17	10.428	
3,600.0	3,522.7	3,606.7	3,559.3	14.4	12.0	-168.70	116.2	433.3	184.5	166.7	17.74	10.397	
3,700.0	3,619.3	3,706.6	3,657.1	15.0	12.5	-168.62	121.2	453.2	189.9	171.6	18.32	10.367	
3,800.0	3,715.9	3,806.4	3,754.8	15.5	12.9	-168.54	126.3	473.1	195.4	176.5	18.89	10.339	
3,900.0	3,812.6	3,906.3	3,852.5	16.1	13.3	-168.46	131.3	493.1	200.8	181.3	19.47	10.312	
4,000.0	3,909.2	4,006.1	3,950.2	16.6	13.8	-168.39	136.3	513.0	206.2	186.2	20.05	10.286	
4,100.0	4,005.9	4,106.0	4,047.9	17.1	14.2	-168.32	141.3	532.9	211.7	191.1	20.63	10.261	
4,200.0	4,102.5	4,205.8	4,145.6	17.7	14.7	-168.26	146.3	552.9	217.1	195.9	21.21	10.237	
4,300.0	4,199.2	4,305.7	4,243.3	18.2	15.1	-168.20	151.4	572.8	222.6	200.8	21.79	10.214	
4,400.0	4,295.8	4,405.5	4,341.0	18.8	15.6	-168.14	156.4	592.7	228.0	205.7	22.38	10.192	
4,500.0	4,392.5	4,505.4	4,438.8	19.3	16.0	-168.08	161.4	612.7	233.5	210.5	22.96	10.171	
4,600.0	4,489.1	4,605.2	4,536.5	19.9	16.5	-168.03	166.4	632.6	239.0	215.4	23.54	10.150	
4,700.0	4,585.7	4,705.1	4,634.2	20.4	16.9	-167.98	171.4	652.5	244.4	220.3	24.12	10.131	
4,800.0	4,682.4	4,804.9	4,731.9	21.0	17.4	-167.93	176.5	672.5	249.9	225.1	24.71	10.112	
4,900.0	4,779.0	4,904.8	4,829.6	21.5	17.8	-167.88	181.5	692.4	255.3	230.0	25.29	10.093	
5,000.0	4,875.7	5,004.6	4,927.3	22.1	18.3	-167.84	186.5	712.3	260.8	234.9	25.88	10.076	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,972.3	5,104.5	5,025.0	22.6	18.7	-167.79	191.5	732.3	266.2	239.7	26.46	10.059	
5,200.0	5,069.0	5,204.3	5,122.7	23.1	19.2	-167.75	196.6	752.2	271.7	244.6	27.05	10.043	
5,300.0	5,165.6	5,304.2	5,220.5	23.7	19.6	-167.71	201.6	772.1	277.1	249.5	27.64	10.027	
5,400.0	5,262.2	5,404.0	5,318.2	24.2	20.1	-167.68	206.6	792.1	282.6	254.3	28.22	10.012	
5,500.0	5,358.9	5,503.9	5,415.9	24.8	20.5	-167.64	211.6	812.0	288.0	259.2	28.81	9.997	
5,600.0	5,455.5	5,603.7	5,513.6	25.3	21.0	-167.61	216.6	831.9	293.5	264.1	29.40	9.983	
5,700.0	5,552.2	5,703.6	5,611.3	25.9	21.4	-167.57	221.7	851.9	298.9	268.9	29.99	9.969	
5,800.0	5,648.8	5,803.4	5,709.0	26.4	21.9	-167.54	226.7	871.8	304.4	273.8	30.57	9.956	
5,900.0	5,745.5	5,903.3	5,806.7	27.0	22.3	-167.51	231.7	891.7	309.8	278.7	31.16	9.943	
6,000.0	5,842.1	6,003.1	5,904.4	27.5	22.8	-167.48	236.7	911.7	315.3	283.5	31.75	9.930	
6,100.0	5,938.7	6,093.8	5,993.5	28.1	23.1	-167.51	241.0	928.6	322.1	289.8	32.28	9.978	
6,200.0	6,035.4	6,183.5	6,082.0	28.6	23.4	-167.68	244.5	942.6	331.9	299.1	32.75	10.134	
6,300.0	6,132.3	6,272.7	6,170.3	29.1	23.6	-167.98	247.4	953.9	343.8	310.6	33.19	10.358	
6,400.0	6,229.9	6,361.5	6,258.8	29.5	23.8	-168.29	249.5	962.5	355.5	321.9	33.57	10.590	
6,500.0	6,328.2	6,450.1	6,347.1	29.8	24.0	-168.59	251.0	968.4	366.7	332.8	33.89	10.822	
6,600.0	6,427.1	6,538.4	6,435.4	30.1	24.1	-168.90	251.8	971.6	377.5	343.4	34.15	11.056	
6,700.0	6,526.5	6,629.5	6,526.5	30.3	24.2	-169.20	252.0	972.4	387.8	353.5	34.37	11.285	
6,800.0	6,626.2	6,729.2	6,626.2	30.5	24.3	-169.44	252.0	972.4	395.5	360.9	34.57	11.440	
6,900.0	6,726.1	6,829.1	6,726.1	30.6	24.5	-169.57	252.0	972.4	399.8	365.0	34.76	11.502	
7,000.0	6,826.1	6,929.1	6,826.1	30.7	24.6	-90.00	252.0	972.4	400.7	365.7	34.97	11.460	
7,100.0	6,926.1	7,029.1	6,926.1	30.8	24.7	-90.00	252.0	972.4	400.7	365.4	35.31	11.346	
7,130.2	6,956.3	7,059.3	6,956.3	30.8	24.8	90.08	252.0	972.4	400.7	365.3	35.42	11.311	
7,200.0	7,025.8	7,128.9	7,025.8	30.9	24.9	90.85	252.0	972.4	400.7	365.0	35.79	11.197	
7,300.0	7,123.9	7,229.3	7,126.1	31.0	25.0	92.93	247.6	972.4	401.2	364.8	36.44	11.012	
7,400.0	7,218.7	7,332.0	7,227.2	31.0	25.0	95.01	229.8	972.4	402.3	365.3	36.97	10.880	
7,500.0	7,308.6	7,436.9	7,326.9	31.0	25.1	97.00	197.9	972.4	403.8	366.4	37.34	10.814	
7,600.0	7,391.9	7,543.9	7,423.3	31.0	25.1	98.89	151.5	972.4	405.7	368.1	37.52	10.811	
7,700.0	7,467.4	7,653.0	7,513.9	31.0	25.1	100.61	90.8	972.4	407.8	370.2	37.58	10.850	
7,800.0	7,533.7	7,764.3	7,596.4	31.0	25.1	102.15	16.3	972.4	410.0	372.3	37.63	10.896	
7,900.0	7,589.7	7,877.4	7,668.2	31.1	25.2	103.46	-70.9	972.4	412.1	374.2	37.85	10.889	
8,000.0	7,634.3	7,992.1	7,727.2	31.3	25.3	104.51	-169.2	972.4	414.0	375.6	38.40	10.780	
8,100.0	7,667.0	8,108.2	7,771.2	31.5	25.6	105.28	-276.5	972.4	415.4	375.9	39.49	10.521	
8,200.0	7,687.0	8,225.2	7,798.6	31.8	26.1	105.76	-390.2	972.4	416.4	375.2	41.19	10.109	
8,300.0	7,694.0	8,342.5	7,808.4	32.2	26.7	105.93	-507.0	972.4	416.7	373.2	43.48	9.584	
8,400.0	7,694.2	8,442.5	7,809.2	32.8	27.4	106.02	-606.9	972.4	416.9	371.4	45.48	9.166	
8,500.0	7,694.3	8,542.5	7,810.0	33.4	28.2	106.11	-706.9	972.4	417.1	369.4	47.66	8.751	
8,600.0	7,694.5	8,642.5	7,810.8	34.2	29.2	106.20	-806.9	972.4	417.3	367.2	50.01	8.343	
8,700.0	7,694.6	8,742.5	7,811.7	35.0	30.2	106.29	-906.9	972.4	417.4	364.9	52.52	7.948	
8,800.0	7,694.7	8,842.5	7,812.5	35.9	31.3	106.37	-1,006.9	972.4	417.6	362.5	55.17	7.571	
8,900.0	7,694.9	8,942.5	7,813.3	37.0	32.6	106.46	-1,106.9	972.4	417.8	359.9	57.92	7.214	
9,000.0	7,695.0	9,042.5	7,814.1	38.1	33.9	106.55	-1,206.9	972.4	418.0	357.3	60.77	6.878	
9,100.0	7,695.2	9,142.5	7,814.9	39.2	35.2	106.64	-1,306.9	972.4	418.2	354.5	63.71	6.565	
9,200.0	7,695.3	9,242.5	7,815.8	40.5	36.6	106.73	-1,406.9	972.4	418.4	351.7	66.72	6.271	
9,300.0	7,695.4	9,342.5	7,816.6	41.8	38.1	106.82	-1,506.9	972.4	418.6	348.8	69.79	5.998	
9,400.0	7,695.6	9,442.5	7,817.4	43.1	39.6	106.91	-1,606.9	972.4	418.8	345.9	72.91	5.744	
9,500.0	7,695.7	9,542.5	7,818.2	44.5	41.1	107.00	-1,706.9	972.4	419.0	342.9	76.08	5.507	
9,600.0	7,695.9	9,642.5	7,819.0	45.9	42.7	107.09	-1,806.9	972.4	419.2	339.9	79.30	5.287	
9,700.0	7,696.0	9,742.5	7,819.9	47.4	44.3	107.18	-1,906.9	972.4	419.4	336.9	82.54	5.081	
9,800.0	7,696.1	9,842.5	7,820.7	48.9	45.9	107.27	-2,006.9	972.4	419.6	333.8	85.82	4.889	
9,900.0	7,696.3	9,942.5	7,821.5	50.4	47.5	107.36	-2,106.9	972.4	419.8	330.7	89.13	4.710	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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

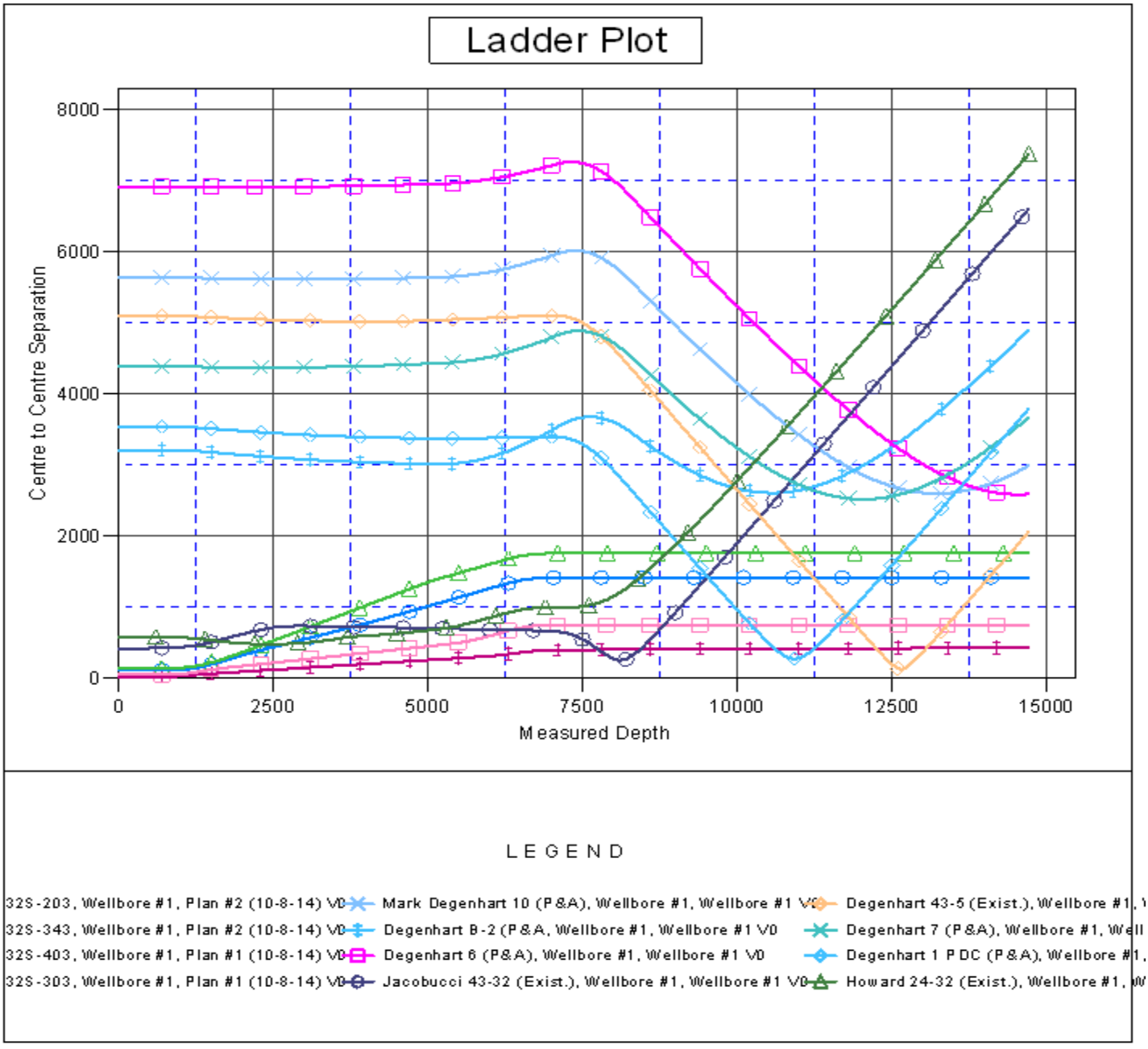
Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	7,696.4	10,042.5	7,822.3	52.0	49.2	107.44	-2,206.9	972.4	420.0	327.6	92.46	4.543	
10,100.0	7,696.6	10,142.5	7,823.1	53.6	50.9	107.53	-2,306.9	972.4	420.2	324.4	95.81	4.386	
10,200.0	7,696.7	10,242.5	7,824.0	55.2	52.6	107.62	-2,406.8	972.4	420.4	321.2	99.18	4.239	
10,300.0	7,696.8	10,342.5	7,824.8	56.8	54.3	107.71	-2,506.8	972.4	420.6	318.1	102.57	4.101	
10,400.0	7,697.0	10,442.5	7,825.6	58.4	56.0	107.80	-2,606.8	972.4	420.8	314.9	105.97	3.971	
10,500.0	7,697.1	10,542.5	7,826.4	60.1	57.7	107.89	-2,706.8	972.4	421.0	311.7	109.38	3.849	
10,600.0	7,697.3	10,642.5	7,827.2	61.8	59.5	107.97	-2,806.8	972.4	421.3	308.4	112.81	3.734	
10,700.0	7,697.4	10,742.5	7,828.1	63.5	61.2	108.06	-2,906.8	972.4	421.5	305.2	116.24	3.626	
10,800.0	7,697.5	10,842.5	7,828.9	65.2	63.0	108.15	-3,006.8	972.4	421.7	302.0	119.69	3.523	
10,900.0	7,697.7	10,942.5	7,829.7	66.9	64.8	108.24	-3,106.8	972.4	421.9	298.8	123.14	3.426	
11,000.0	7,697.8	11,042.5	7,830.5	68.6	66.6	108.33	-3,206.8	972.4	422.1	295.5	126.60	3.334	
11,100.0	7,698.0	11,142.5	7,831.3	70.3	68.3	108.41	-3,306.8	972.4	422.3	292.3	130.07	3.247	
11,200.0	7,698.1	11,242.5	7,832.2	72.1	70.1	108.50	-3,406.8	972.4	422.5	289.0	133.54	3.164	
11,300.0	7,698.2	11,342.5	7,833.0	73.8	71.9	108.59	-3,506.8	972.4	422.8	285.7	137.01	3.086	
11,400.0	7,698.4	11,442.5	7,833.8	75.6	73.7	108.68	-3,606.8	972.4	423.0	282.5	140.49	3.011	
11,500.0	7,698.5	11,542.5	7,834.6	77.4	75.6	108.76	-3,706.8	972.4	423.2	279.2	143.97	2.939	
11,600.0	7,698.7	11,642.5	7,835.4	79.1	77.4	108.85	-3,806.8	972.4	423.4	275.9	147.46	2.871	
11,700.0	7,698.8	11,742.5	7,836.3	80.9	79.2	108.94	-3,906.8	972.4	423.6	272.7	150.95	2.807	
11,800.0	7,698.9	11,842.4	7,837.1	82.7	81.0	109.02	-4,006.8	972.4	423.8	269.4	154.43	2.745	
11,900.0	7,699.1	11,942.4	7,837.9	84.5	82.9	109.11	-4,106.7	972.4	424.1	266.1	157.93	2.685	
12,000.0	7,699.2	12,042.4	7,838.7	86.3	84.7	109.20	-4,206.7	972.4	424.3	262.9	161.42	2.629	
12,100.0	7,699.4	12,142.4	7,839.6	88.1	86.5	109.28	-4,306.7	972.4	424.5	259.6	164.91	2.574	
12,200.0	7,699.5	12,242.4	7,840.4	89.9	88.4	109.37	-4,406.7	972.4	424.7	256.3	168.41	2.522	
12,300.0	7,699.6	12,342.4	7,841.2	91.7	90.2	109.46	-4,506.7	972.4	425.0	253.1	171.90	2.472	
12,400.0	7,699.8	12,442.4	7,842.0	93.6	92.1	109.54	-4,606.7	972.4	425.2	249.8	175.40	2.424	
12,500.0	7,699.9	12,542.4	7,842.8	95.4	93.9	109.63	-4,706.7	972.4	425.4	246.5	178.89	2.378	
12,600.0	7,700.0	12,642.4	7,843.7	97.2	95.8	109.72	-4,806.7	972.4	425.7	243.3	182.39	2.334	
12,700.0	7,700.2	12,742.4	7,844.5	99.0	97.6	109.80	-4,906.7	972.4	425.9	240.0	185.88	2.291	
12,800.0	7,700.3	12,842.4	7,845.3	100.9	99.5	109.89	-5,006.7	972.4	426.1	236.7	189.38	2.250	
12,900.0	7,700.5	12,942.4	7,846.1	102.7	101.3	109.98	-5,106.7	972.4	426.3	233.5	192.87	2.211	
13,000.0	7,700.6	13,042.4	7,846.9	104.5	103.2	110.06	-5,206.7	972.4	426.6	230.2	196.36	2.172	
13,100.0	7,700.7	13,142.4	7,847.8	106.4	105.1	110.15	-5,306.7	972.4	426.8	227.0	199.85	2.136	
13,200.0	7,700.9	13,242.4	7,848.6	108.2	106.9	110.23	-5,406.7	972.4	427.1	223.7	203.34	2.100	
13,300.0	7,701.0	13,342.4	7,849.4	110.1	108.8	110.32	-5,506.7	972.4	427.3	220.5	206.83	2.066	
13,400.0	7,701.2	13,442.4	7,850.2	111.9	110.7	110.40	-5,606.7	972.4	427.5	217.2	210.31	2.033	
13,500.0	7,701.3	13,542.4	7,851.0	113.8	112.5	110.49	-5,706.7	972.4	427.8	214.0	213.80	2.001	
13,600.0	7,701.4	13,642.4	7,851.9	115.6	114.4	110.57	-5,806.7	972.4	428.0	210.7	217.28	1.970	
13,700.0	7,701.6	13,742.4	7,852.7	117.5	116.3	110.66	-5,906.6	972.4	428.2	207.5	220.76	1.940	
13,800.0	7,701.7	13,842.4	7,853.5	119.3	118.2	110.75	-6,006.6	972.4	428.5	204.2	224.24	1.911	
13,900.0	7,701.9	13,942.4	7,854.3	121.2	120.0	110.83	-6,106.6	972.4	428.7	201.0	227.72	1.883	
14,000.0	7,702.0	14,042.4	7,855.1	123.0	121.9	110.92	-6,206.6	972.4	429.0	197.8	231.19	1.855	
14,100.0	7,702.1	14,142.4	7,856.0	124.9	123.8	111.00	-6,306.6	972.4	429.2	194.5	234.67	1.829	
14,200.0	7,702.3	14,242.4	7,856.8	126.8	125.7	111.08	-6,406.6	972.4	429.5	191.3	238.14	1.803	
14,300.0	7,702.4	14,342.4	7,857.6	128.6	127.5	111.17	-6,506.6	972.4	429.7	188.1	241.60	1.779	
14,400.0	7,702.6	14,442.4	7,858.4	130.5	129.4	111.25	-6,606.6	972.4	429.9	184.9	245.07	1.754	
14,500.0	7,702.7	14,542.4	7,859.2	132.3	131.3	111.34	-6,706.6	972.4	430.2	181.7	248.53	1.731	
14,600.0	7,702.8	14,642.4	7,860.1	134.2	133.2	111.42	-6,806.6	972.4	430.4	178.4	251.99	1.708	
14,700.0	7,703.0	14,742.4	7,860.9	136.1	135.1	111.51	-6,906.6	972.4	430.7	175.2	255.45	1.686	
14,713.5	7,703.0	14,755.9	7,861.0	136.3	135.3	111.52	-6,920.1	972.4	430.7	174.8	255.92	1.683 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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-323

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°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32S-323
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-323	**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 #2 (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-323
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°