PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Jacobucci 32O-423**

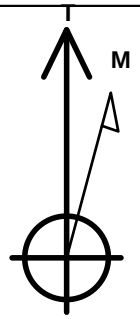
Surface Location: Jacobucci 1N67W32O Pad Sec.32-T1N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 5058.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1245914.61	3163748.73	40.006940	-104.915440	

Original Well Elev WELL @ 5073.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2407'FSL & 2317'FWL, Sec.32	1.0	0.0	0.0	Point
BHL 500'FSL & 2424'FWL, Sec.5	7870.0	-7001.6	566.0	Point



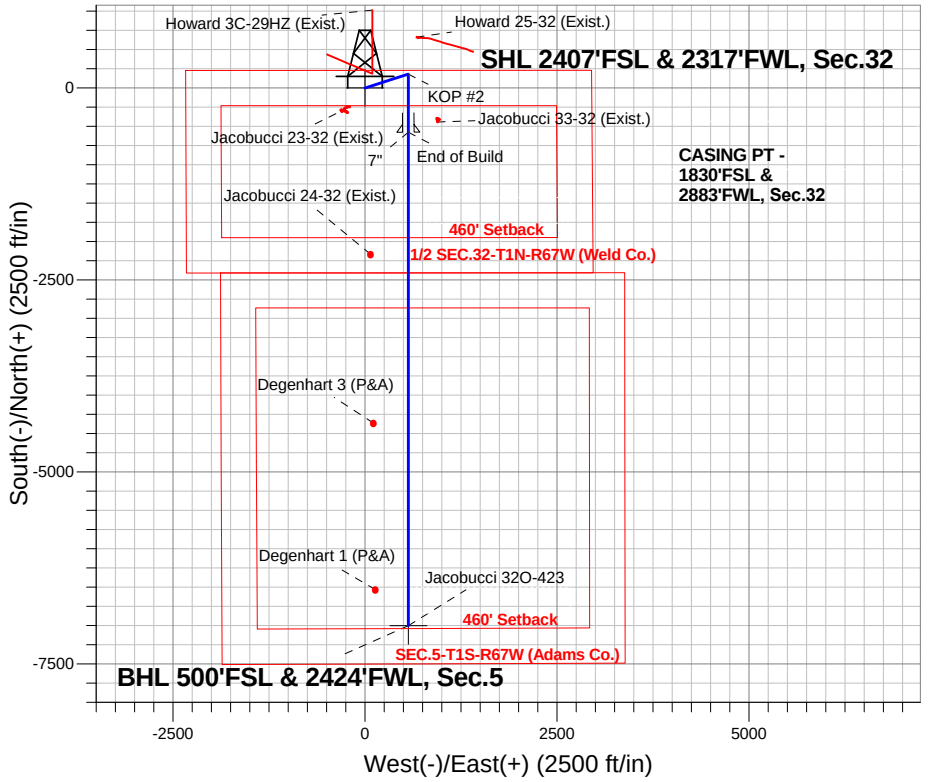
Azimuths to True North
Magnetic North: 8.49°

Magnetic Field
Strength: 52578.4snT
Dip Angle: 66.60°
Date: 7/28/2014
Model: IGRF2010

Jacobucci 1N67W32O Pad Sec.32-T1N-R67W
Jacobucci 32O-423
Plan #1 (7-25-14)

ANNOTATIONS

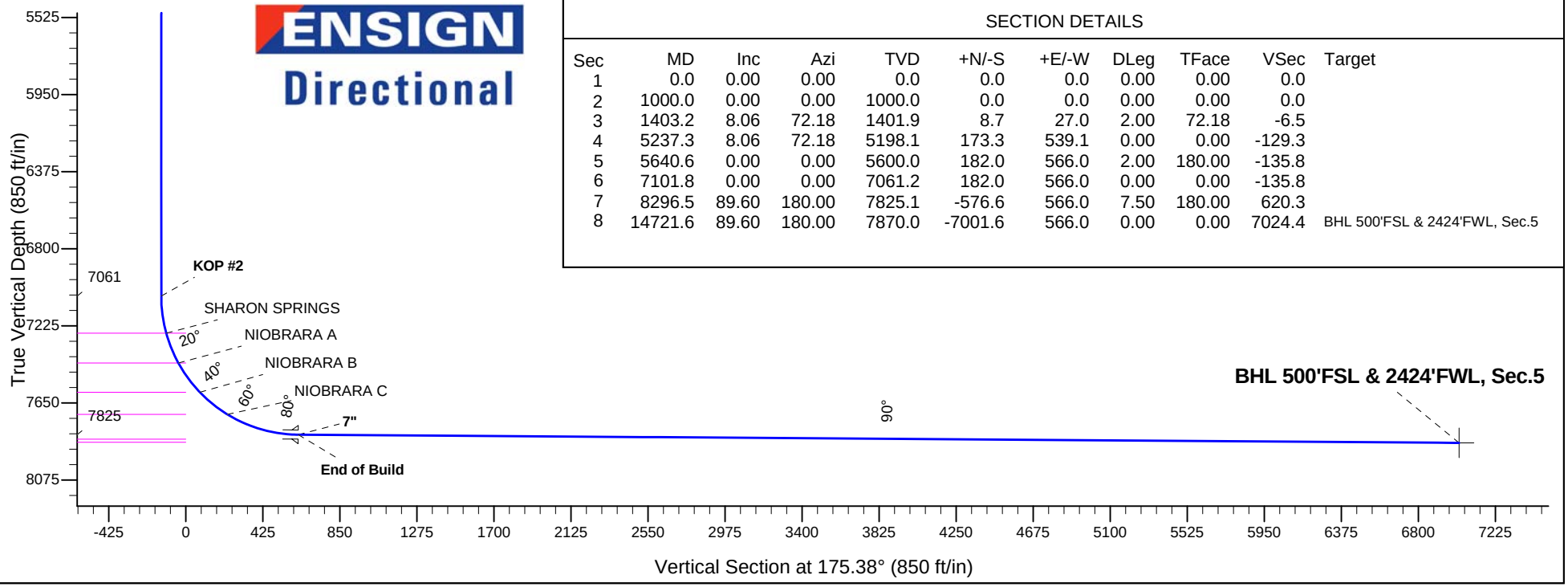
TVD	MD	Annotation
1000.0	1000.0	KOP
7061.2	7101.8	KOP #2
7825.1	8296.5	End of Build



ENSIGN Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1403.2	8.06	72.18	1401.9	8.7	27.0	2.00	72.18	-6.5	
4	5237.3	8.06	72.18	5198.1	173.3	539.1	0.00	0.00	-129.3	
5	5640.6	0.00	0.00	5600.0	182.0	566.0	2.00	180.00	-135.8	
6	7101.8	0.00	0.00	7061.2	182.0	566.0	0.00	0.00	-135.8	
7	8296.5	89.60	180.00	7825.1	-576.6	566.0	7.50	180.00	620.3	
8	14721.6	89.60	180.00	7870.0	-7001.6	566.0	0.00	0.00	7024.4	BHL 500'FSL & 2424'FWL, Sec.5



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T1N-R67W
Jacobucci 1N67W32O Pad Sec.32-T1N-R67W
Jacobucci 32O-423

Wellbore #1

Plan: Plan #1 (7-25-14)

Standard Planning Report

01 August, 2014

PDC ENERGY
Growing E&P Value

Database:	landmark	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Project:	SEC.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**North Reference:**	True
Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

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 1N67W32O Pad Sec.32-T1N-R67W

Site Position:		**Northing:**	1,245,914.62 ft	**Latitude:**	40.006940
From:	Lat/Long	**Easting:**	3,163,748.73 ft	**Longitude:**	-104.915440
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.38 °

Well Jacobucci 32O-423

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,245,914.61 ft	**Latitude:**	40.006940
	+E/-W	0.0 ft	**Easting:**	3,163,748.73 ft	**Longitude:**	-104.915440
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	5,058.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/28/2014	8.49	66.60	52,578

Design Plan #1 (7-25-14)

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	175.38

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,403.2	8.06	72.18	1,401.9	8.7	27.0	2.00	2.00	0.00	72.18	
5,237.3	8.06	72.18	5,198.1	173.3	539.1	0.00	0.00	0.00	0.00	
5,640.6	0.00	0.00	5,600.0	182.0	566.0	2.00	-2.00	0.00	180.00	
7,101.8	0.00	0.00	7,061.2	182.0	566.0	0.00	0.00	0.00	0.00	
8,296.5	89.60	180.00	7,825.1	-576.6	566.0	7.50	7.50	0.00	180.00	
14,721.6	89.60	180.00	7,870.0	-7,001.6	566.0	0.00	0.00	0.00	0.00	BHL 500'FSL & 242

Database:	landmark	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
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Project:	SEC.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**North Reference:**	True
Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP									
1,100.0	2.00	72.18	1,100.0	0.5	1.7	-0.4	2.00	2.00	0.00
1,200.0	4.00	72.18	1,199.8	2.1	6.6	-1.6	2.00	2.00	0.00
1,300.0	6.00	72.18	1,299.5	4.8	14.9	-3.6	2.00	2.00	0.00
1,400.0	8.00	72.18	1,398.7	8.5	26.5	-6.4	2.00	2.00	0.00
1,403.2	8.06	72.18	1,401.9	8.7	27.0	-6.5	2.00	2.00	0.00
1,500.0	8.06	72.18	1,497.7	12.8	39.9	-9.6	0.00	0.00	0.00
1,600.0	8.06	72.18	1,596.7	17.1	53.3	-12.8	0.00	0.00	0.00
1,700.0	8.06	72.18	1,695.7	21.4	66.6	-16.0	0.00	0.00	0.00
1,800.0	8.06	72.18	1,794.7	25.7	80.0	-19.2	0.00	0.00	0.00
1,900.0	8.06	72.18	1,893.8	30.0	93.3	-22.4	0.00	0.00	0.00
2,000.0	8.06	72.18	1,992.8	34.3	106.7	-25.6	0.00	0.00	0.00
2,100.0	8.06	72.18	2,091.8	38.6	120.0	-28.8	0.00	0.00	0.00
2,200.0	8.06	72.18	2,190.8	42.9	133.4	-32.0	0.00	0.00	0.00
2,300.0	8.06	72.18	2,289.8	47.2	146.7	-35.2	0.00	0.00	0.00
2,400.0	8.06	72.18	2,388.8	51.5	160.1	-38.4	0.00	0.00	0.00
2,500.0	8.06	72.18	2,487.8	55.8	173.5	-41.6	0.00	0.00	0.00
2,600.0	8.06	72.18	2,586.8	60.1	186.8	-44.8	0.00	0.00	0.00
2,700.0	8.06	72.18	2,685.8	64.4	200.2	-48.0	0.00	0.00	0.00
2,800.0	8.06	72.18	2,784.9	68.7	213.5	-51.2	0.00	0.00	0.00
2,900.0	8.06	72.18	2,883.9	73.0	226.9	-54.4	0.00	0.00	0.00
3,000.0	8.06	72.18	2,982.9	77.2	240.2	-57.6	0.00	0.00	0.00
3,100.0	8.06	72.18	3,081.9	81.5	253.6	-60.8	0.00	0.00	0.00
3,200.0	8.06	72.18	3,180.9	85.8	267.0	-64.0	0.00	0.00	0.00
3,300.0	8.06	72.18	3,279.9	90.1	280.3	-67.2	0.00	0.00	0.00
3,400.0	8.06	72.18	3,378.9	94.4	293.7	-70.5	0.00	0.00	0.00
3,500.0	8.06	72.18	3,477.9	98.7	307.0	-73.7	0.00	0.00	0.00
3,600.0	8.06	72.18	3,576.9	103.0	320.4	-76.9	0.00	0.00	0.00
3,700.0	8.06	72.18	3,676.0	107.3	333.7	-80.1	0.00	0.00	0.00
3,800.0	8.06	72.18	3,775.0	111.6	347.1	-83.3	0.00	0.00	0.00
3,900.0	8.06	72.18	3,874.0	115.9	360.4	-86.5	0.00	0.00	0.00
4,000.0	8.06	72.18	3,973.0	120.2	373.8	-89.7	0.00	0.00	0.00
4,100.0	8.06	72.18	4,072.0	124.5	387.2	-92.9	0.00	0.00	0.00
4,200.0	8.06	72.18	4,171.0	128.8	400.5	-96.1	0.00	0.00	0.00
4,300.0	8.06	72.18	4,270.0	133.1	413.9	-99.3	0.00	0.00	0.00
4,400.0	8.06	72.18	4,369.0	137.4	427.2	-102.5	0.00	0.00	0.00
4,500.0	8.06	72.18	4,468.0	141.7	440.6	-105.7	0.00	0.00	0.00
4,532.3	8.06	72.18	4,500.0	143.0	444.9	-106.7	0.00	0.00	0.00
PARKMAN									
4,600.0	8.06	72.18	4,567.1	146.0	453.9	-108.9	0.00	0.00	0.00
4,700.0	8.06	72.18	4,666.1	150.3	467.3	-112.1	0.00	0.00	0.00

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Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**North Reference:**	True
Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

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	8.06	72.18	4,765.1	154.5	480.6	-115.3	0.00	0.00	0.00
4,900.0	8.06	72.18	4,864.1	158.8	494.0	-118.5	0.00	0.00	0.00
4,936.3	8.06	72.18	4,900.0	160.4	498.8	-119.7	0.00	0.00	0.00
SUSSEX									
5,000.0	8.06	72.18	4,963.1	163.1	507.4	-121.7	0.00	0.00	0.00
5,100.0	8.06	72.18	5,062.1	167.4	520.7	-124.9	0.00	0.00	0.00
5,200.0	8.06	72.18	5,161.1	171.7	534.1	-128.1	0.00	0.00	0.00
5,237.3	8.06	72.18	5,198.1	173.3	539.1	-129.3	0.00	0.00	0.00
5,300.0	6.81	72.18	5,260.2	175.8	546.8	-131.2	2.00	-2.00	0.00
5,390.3	5.01	72.18	5,350.0	178.7	555.6	-133.3	2.00	-2.00	0.00
SHANNON									
5,400.0	4.81	72.18	5,359.7	178.9	556.4	-133.5	2.00	-2.00	0.00
5,500.0	2.81	72.18	5,459.5	180.9	562.7	-135.0	2.00	-2.00	0.00
5,600.0	0.81	72.18	5,559.4	181.9	565.8	-135.7	2.00	-2.00	0.00
5,640.6	0.00	0.00	5,600.0	182.0	566.0	-135.8	2.00	-2.00	0.00
5,700.0	0.00	0.00	5,659.4	182.0	566.0	-135.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,759.4	182.0	566.0	-135.8	0.00	0.00	0.00
5,900.0	0.00	0.00	5,859.4	182.0	566.0	-135.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,959.4	182.0	566.0	-135.8	0.00	0.00	0.00
6,100.0	0.00	0.00	6,059.4	182.0	566.0	-135.8	0.00	0.00	0.00
6,200.0	0.00	0.00	6,159.4	182.0	566.0	-135.8	0.00	0.00	0.00
6,300.0	0.00	0.00	6,259.4	182.0	566.0	-135.8	0.00	0.00	0.00
6,400.0	0.00	0.00	6,359.4	182.0	566.0	-135.8	0.00	0.00	0.00
6,500.0	0.00	0.00	6,459.4	182.0	566.0	-135.8	0.00	0.00	0.00
6,600.0	0.00	0.00	6,559.4	182.0	566.0	-135.8	0.00	0.00	0.00
6,700.0	0.00	0.00	6,659.4	182.0	566.0	-135.8	0.00	0.00	0.00
6,800.0	0.00	0.00	6,759.4	182.0	566.0	-135.8	0.00	0.00	0.00
6,900.0	0.00	0.00	6,859.4	182.0	566.0	-135.8	0.00	0.00	0.00
7,000.0	0.00	0.00	6,959.4	182.0	566.0	-135.8	0.00	0.00	0.00
7,100.0	0.00	0.00	7,059.4	182.0	566.0	-135.8	0.00	0.00	0.00
7,101.8	0.00	0.00	7,061.2	182.0	566.0	-135.8	0.00	0.00	0.00
KOP #2									
7,200.0	7.37	180.00	7,159.1	175.7	566.0	-129.5	7.50	7.50	0.00
7,300.0	14.87	180.00	7,257.2	156.4	566.0	-110.3	7.50	7.50	0.00
7,309.1	15.55	180.00	7,266.0	154.0	566.0	-107.9	7.50	7.50	0.00
SHARON SPRINGS									
7,400.0	22.37	180.00	7,351.9	124.5	566.0	-78.5	7.50	7.50	0.00
7,486.7	28.86	180.00	7,430.0	87.1	566.0	-41.2	7.50	7.50	0.00
NIOBRARA A									
7,500.0	29.87	180.00	7,441.6	80.5	566.0	-34.7	7.50	7.50	0.00
7,600.0	37.37	180.00	7,524.8	25.2	566.0	20.5	7.50	7.50	0.00
7,687.2	43.91	180.00	7,591.0	-31.5	566.0	77.1	7.50	7.50	0.00
NIOBRARA B									
7,700.0	44.86	180.00	7,600.1	-40.5	566.0	86.0	7.50	7.50	0.00
7,800.0	52.36	180.00	7,666.2	-115.5	566.0	160.7	7.50	7.50	0.00
7,882.6	58.56	180.00	7,713.0	-183.5	566.0	228.5	7.50	7.50	0.00
NIOBRARA C									
7,900.0	59.86	180.00	7,721.9	-198.4	566.0	243.4	7.50	7.50	0.00
8,000.0	67.36	180.00	7,766.3	-287.9	566.0	332.6	7.50	7.50	0.00
8,100.0	74.86	180.00	7,798.7	-382.5	566.0	426.9	7.50	7.50	0.00
8,200.0	82.36	180.00	7,818.4	-480.4	566.0	524.5	7.50	7.50	0.00
8,296.5	89.60	180.00	7,825.1	-576.6	566.0	620.4	7.50	7.50	0.00

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Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**North Reference:**	True
Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

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)
End of Build - 7"									
8,300.0	89.60	180.00	7,825.2	-580.1	566.0	623.9	0.00	0.00	0.00
8,400.0	89.60	180.00	7,825.9	-680.1	566.0	723.5	0.00	0.00	0.00
8,500.0	89.60	180.00	7,826.6	-780.1	566.0	823.2	0.00	0.00	0.00
8,600.0	89.60	180.00	7,827.3	-880.1	566.0	922.9	0.00	0.00	0.00
8,700.0	89.60	180.00	7,828.0	-980.1	566.0	1,022.6	0.00	0.00	0.00
8,800.0	89.60	180.00	7,828.7	-1,080.1	566.0	1,122.2	0.00	0.00	0.00
8,900.0	89.60	180.00	7,829.4	-1,180.1	566.0	1,221.9	0.00	0.00	0.00
9,000.0	89.60	180.00	7,830.1	-1,280.1	566.0	1,321.6	0.00	0.00	0.00
9,100.0	89.60	180.00	7,830.8	-1,380.1	566.0	1,421.2	0.00	0.00	0.00
9,200.0	89.60	180.00	7,831.5	-1,480.1	566.0	1,520.9	0.00	0.00	0.00
9,300.0	89.60	180.00	7,832.2	-1,580.1	566.0	1,620.6	0.00	0.00	0.00
9,400.0	89.60	180.00	7,832.8	-1,680.1	566.0	1,720.3	0.00	0.00	0.00
9,500.0	89.60	180.00	7,833.5	-1,780.1	566.0	1,819.9	0.00	0.00	0.00
9,600.0	89.60	180.00	7,834.2	-1,880.1	566.0	1,919.6	0.00	0.00	0.00
9,700.0	89.60	180.00	7,834.9	-1,980.1	566.0	2,019.3	0.00	0.00	0.00
9,800.0	89.60	180.00	7,835.6	-2,080.1	566.0	2,119.0	0.00	0.00	0.00
9,900.0	89.60	180.00	7,836.3	-2,180.1	566.0	2,218.6	0.00	0.00	0.00
10,000.0	89.60	180.00	7,837.0	-2,280.1	566.0	2,318.3	0.00	0.00	0.00
10,100.0	89.60	180.00	7,837.7	-2,380.1	566.0	2,418.0	0.00	0.00	0.00
10,200.0	89.60	180.00	7,838.4	-2,480.1	566.0	2,517.6	0.00	0.00	0.00
10,300.0	89.60	180.00	7,839.1	-2,580.1	566.0	2,617.3	0.00	0.00	0.00
10,400.0	89.60	180.00	7,839.8	-2,680.1	566.0	2,717.0	0.00	0.00	0.00
10,500.0	89.60	180.00	7,840.5	-2,780.1	566.0	2,816.7	0.00	0.00	0.00
10,600.0	89.60	180.00	7,841.2	-2,880.1	566.0	2,916.3	0.00	0.00	0.00
10,700.0	89.60	180.00	7,841.9	-2,980.1	566.0	3,016.0	0.00	0.00	0.00
10,800.0	89.60	180.00	7,842.6	-3,080.1	566.0	3,115.7	0.00	0.00	0.00
10,900.0	89.60	180.00	7,843.3	-3,180.1	566.0	3,215.4	0.00	0.00	0.00
11,000.0	89.60	180.00	7,844.0	-3,280.1	566.0	3,315.0	0.00	0.00	0.00
11,100.0	89.60	180.00	7,844.7	-3,380.1	566.0	3,414.7	0.00	0.00	0.00
11,200.0	89.60	180.00	7,845.4	-3,480.1	566.0	3,514.4	0.00	0.00	0.00
11,300.0	89.60	180.00	7,846.1	-3,580.1	566.0	3,614.0	0.00	0.00	0.00
11,400.0	89.60	180.00	7,846.8	-3,680.1	566.0	3,713.7	0.00	0.00	0.00
11,500.0	89.60	180.00	7,847.5	-3,780.1	566.0	3,813.4	0.00	0.00	0.00
11,600.0	89.60	180.00	7,848.2	-3,880.1	566.0	3,913.1	0.00	0.00	0.00
11,700.0	89.60	180.00	7,848.9	-3,980.1	566.0	4,012.7	0.00	0.00	0.00
11,800.0	89.60	180.00	7,849.6	-4,080.1	566.0	4,112.4	0.00	0.00	0.00
11,856.8	89.60	180.00	7,850.0	-4,136.8	566.0	4,169.0	0.00	0.00	0.00
FT HAYS									
11,900.0	89.60	180.00	7,850.3	-4,180.1	566.0	4,212.1	0.00	0.00	0.00
12,000.0	89.60	180.00	7,851.0	-4,280.1	566.0	4,311.7	0.00	0.00	0.00
12,100.0	89.60	180.00	7,851.7	-4,380.1	566.0	4,411.4	0.00	0.00	0.00
12,200.0	89.60	180.00	7,852.4	-4,480.0	566.0	4,511.1	0.00	0.00	0.00
12,300.0	89.60	180.00	7,853.1	-4,580.0	566.0	4,610.8	0.00	0.00	0.00
12,400.0	89.60	180.00	7,853.8	-4,680.0	566.0	4,710.4	0.00	0.00	0.00
12,500.0	89.60	180.00	7,854.5	-4,780.0	566.0	4,810.1	0.00	0.00	0.00
12,600.0	89.60	180.00	7,855.2	-4,880.0	566.0	4,909.8	0.00	0.00	0.00
12,700.0	89.60	180.00	7,855.9	-4,980.0	566.0	5,009.5	0.00	0.00	0.00
12,800.0	89.60	180.00	7,856.6	-5,080.0	566.0	5,109.1	0.00	0.00	0.00
12,900.0	89.60	180.00	7,857.3	-5,180.0	566.0	5,208.8	0.00	0.00	0.00
13,000.0	89.60	180.00	7,858.0	-5,280.0	566.0	5,308.5	0.00	0.00	0.00
13,100.0	89.60	180.00	7,858.7	-5,380.0	566.0	5,408.1	0.00	0.00	0.00

Database:	landmark	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Project:	SEC.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**North Reference:**	True
Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

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)
13,200.0	89.60	180.00	7,859.4	-5,480.0	566.0	5,507.8	0.00	0.00	0.00
13,300.0	89.60	180.00	7,860.1	-5,580.0	566.0	5,607.5	0.00	0.00	0.00
13,400.0	89.60	180.00	7,860.8	-5,680.0	566.0	5,707.2	0.00	0.00	0.00
13,500.0	89.60	180.00	7,861.5	-5,780.0	566.0	5,806.8	0.00	0.00	0.00
13,600.0	89.60	180.00	7,862.2	-5,880.0	566.0	5,906.5	0.00	0.00	0.00
13,700.0	89.60	180.00	7,862.9	-5,980.0	566.0	6,006.2	0.00	0.00	0.00
13,800.0	89.60	180.00	7,863.6	-6,080.0	566.0	6,105.8	0.00	0.00	0.00
13,900.0	89.60	180.00	7,864.3	-6,180.0	566.0	6,205.5	0.00	0.00	0.00
14,000.0	89.60	180.00	7,865.0	-6,280.0	566.0	6,305.2	0.00	0.00	0.00
14,100.0	89.60	180.00	7,865.7	-6,380.0	566.0	6,404.9	0.00	0.00	0.00
14,200.0	89.60	180.00	7,866.4	-6,480.0	566.0	6,504.5	0.00	0.00	0.00
14,291.9	89.60	180.00	7,867.0	-6,571.9	566.0	6,596.1	0.00	0.00	0.00
CODELL									
14,300.0	89.60	180.00	7,867.1	-6,580.0	566.0	6,604.2	0.00	0.00	0.00
14,400.0	89.60	180.00	7,867.8	-6,680.0	566.0	6,703.9	0.00	0.00	0.00
14,500.0	89.60	180.00	7,868.5	-6,780.0	566.0	6,803.6	0.00	0.00	0.00
14,600.0	89.60	180.00	7,869.2	-6,880.0	566.0	6,903.2	0.00	0.00	0.00
14,700.0	89.60	180.00	7,869.8	-6,980.0	566.0	7,002.9	0.00	0.00	0.00
14,721.6	89.60	180.00	7,870.0	-7,001.6	566.0	7,024.4	0.00	0.00	0.00

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
8,296.5	7,825.1	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,532.3	4,500.0	PARKMAN		0.00	
4,936.3	4,900.0	SUSSEX		0.00	
5,390.3	5,350.0	SHANNON		0.00	
7,309.1	7,266.0	SHARON SPRINGS		0.00	
7,486.7	7,430.0	NIOBRARA A		0.00	
7,687.2	7,591.0	NIOBRARA B		0.00	
7,882.6	7,713.0	NIOBRARA C		0.00	
11,856.8	7,850.0	FT HAYS		0.00	
14,291.9	7,867.0	CODELL		0.00	

Database:	landmark	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Project:	SEC.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**North Reference:**	True
Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,000.0	1,000.0	0.0	0.0	KOP
7,101.8	7,061.2	182.0	566.0	KOP #2
8,296.5	7,825.1	-576.6	566.0	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T1N-R67W
Jacobucci 1N67W32O Pad Sec.32-T1N-R67W
Jacobucci 32O-423

Wellbore #1
Plan #1 (7-25-14)

Anticollision Report

01 August, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (7-25-14)

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	**Error Surface:**	Elliptical Conic

Warning Levels Evaluated at: 2.00 **Sigma**

Survey Tool Program **Date** 8/1/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,721.6	Plan #1 (7-25-14) (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 (P&A) - Wellbore #1 - Wellbore #1	14,248.4	7,952.7	432.4	146.8	1.514	CC, ES, SF
Degenhart 3 (P&A) - Wellbore #1 - Wellbore #1	12,080.8	7,921.6	457.6	213.5	1.875	CC, ES
Degenhart 3 (P&A) - Wellbore #1 - Wellbore #1	12,100.0	7,921.7	458.0	213.6	1.874	SF
Howard 25-32 (Exist.) - Wellbore #1 - Wellbore #1	5,624.8	5,644.9	491.5	458.0	14.639	CC
Howard 25-32 (Exist.) - Wellbore #1 - Wellbore #1	6,200.0	6,220.1	492.9	457.6	13.944	ES
Howard 25-32 (Exist.) - Wellbore #1 - Wellbore #1	7,100.0	7,118.7	498.6	460.0	12.926	SF
Howard 3C-29HZ (Exist.) - Wellbore #1 - Wellbore #1	5,024.1	5,072.9	445.3	294.6	2.954	CC
Howard 3C-29HZ (Exist.) - Wellbore #1 - Wellbore #1	7,300.0	7,286.4	471.7	292.6	2.634	ES
Howard 3C-29HZ (Exist.) - Wellbore #1 - Wellbore #1	7,400.0	7,377.6	474.9	294.1	2.627	SF
Jacobucci 23-32 (Exist.) - Wellbore #1 - Wellbore #1	879.5	866.5	389.4	385.7	105.712	CC
Jacobucci 23-32 (Exist.) - Wellbore #1 - Wellbore #1	1,000.2	987.3	389.4	385.2	92.033	ES
Jacobucci 23-32 (Exist.) - Wellbore #1 - Wellbore #1	8,200.0	7,874.1	844.7	810.7	24.842	SF
Jacobucci 24-32 (Exist.) - Wellbore #1 - Wellbore #1	9,883.8	7,861.2	496.0	293.6	2.450	CC
Jacobucci 24-32 (Exist.) - Wellbore #1 - Wellbore #1	9,900.0	7,861.3	496.3	293.6	2.448	ES, SF
Jacobucci 33-32 (Exist.) - Wellbore #1 - Wellbore #1	8,147.3	7,809.9	380.2	347.3	11.549	CC, ES
Jacobucci 33-32 (Exist.) - Wellbore #1 - Wellbore #1	8,200.0	7,819.8	383.7	350.4	11.499	SF
Jacobucci 1N67W32O Pad Sec.32-T1N-R67W						
Jacobucci 32O-203 - Wellbore #1 - Plan #1 (7-25-14)	1,000.0	1,000.0	64.4	60.2	15.087	CC, ES
Jacobucci 32O-203 - Wellbore #1 - Plan #1 (7-25-14)	14,721.6	14,502.0	701.6	447.1	2.757	SF
Jacobucci 32O-303 - Wellbore #1 - Plan #1 (7-25-14)	1,000.0	1,000.0	33.6	29.3	7.872	CC, ES
Jacobucci 32O-303 - Wellbore #1 - Plan #1 (7-25-14)	14,721.6	14,616.5	374.9	125.1	1.501	SF
Jacobucci 32O-443 - Wellbore #1 - Plan #1 (7-25-14)	1,000.0	1,000.0	95.2	91.0	22.303	CC, ES
Jacobucci 32O-443 - Wellbore #1 - Plan #1 (7-25-14)	14,721.6	14,731.7	994.7	723.7	3.670	SF
Jacobucci 1N67W32S Pad Sec.32-T1N-67W						
Jacobucci 32S-343 - Wellbore #1 - Plan #1 (7-25-14)	5,661.1	5,645.2	296.4	270.0	11.257	CC
Jacobucci 32S-343 - Wellbore #1 - Plan #1 (7-25-14)	14,721.6	14,593.3	328.2	79.5	1.320	Level 3, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.0 ft

Survey Program: 8110-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
13,400.0	7,860.8	7,946.8	7,946.8	110.9	158.9	89.22	-6,528.4	133.7	952.2	682.8	269.38	3.535	
13,500.0	7,861.5	7,947.5	7,947.5	112.7	158.9	89.31	-6,528.4	133.7	864.3	593.0	271.29	3.186	
13,600.0	7,862.2	7,948.2	7,948.2	114.6	159.0	89.40	-6,528.4	133.7	779.3	506.1	273.21	2.852	
13,700.0	7,862.9	7,948.9	7,948.9	116.5	159.0	89.49	-6,528.4	133.7	698.3	423.2	275.12	2.538	
13,800.0	7,863.6	7,949.6	7,949.6	118.4	159.0	89.59	-6,528.4	133.7	622.9	345.8	277.04	2.248	
13,900.0	7,864.3	7,950.3	7,950.3	120.3	159.0	89.68	-6,528.4	133.7	555.3	276.3	278.95	1.991	
14,000.0	7,865.0	7,951.0	7,951.0	122.2	159.0	89.77	-6,528.4	133.7	498.6	217.8	280.87	1.775	
14,100.0	7,865.7	7,951.7	7,951.7	124.1	159.0	89.86	-6,528.4	133.7	457.1	174.3	282.78	1.617	
14,200.0	7,866.4	7,952.4	7,952.4	126.0	159.0	89.96	-6,528.4	133.7	435.1	150.4	284.69	1.528	
14,248.4	7,866.7	7,952.7	7,952.7	126.9	159.1	90.00	-6,528.4	133.7	432.4	146.8	285.62	1.514	CC, ES, SF
14,300.0	7,867.1	7,953.1	7,953.1	127.9	159.1	90.05	-6,528.4	133.7	435.4	148.8	286.61	1.519	
14,400.0	7,867.8	7,953.8	7,953.8	129.8	159.1	90.14	-6,528.4	133.7	458.2	169.7	288.52	1.588	
14,500.0	7,868.5	7,954.5	7,954.5	131.6	159.1	90.23	-6,528.4	133.7	500.3	209.8	290.44	1.722	
14,600.0	7,869.2	7,955.2	7,955.2	133.5	159.1	90.33	-6,528.4	133.7	557.3	264.9	292.35	1.906	
14,700.0	7,869.8	7,955.8	7,955.8	135.4	159.1	90.42	-6,528.4	133.7	625.2	331.0	294.26	2.125	
14,721.6	7,870.0	7,956.0	7,956.0	135.8	159.1	90.44	-6,528.4	133.7	641.0	346.3	294.68	2.175	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Degenhart 3 (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 8156-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
11,200.0	7,845.4	7,915.4	7,915.4	69.7	158.3	89.23	-4,360.9	108.4	992.6	765.1	227.44	4.364	
11,300.0	7,846.1	7,916.1	7,916.1	71.6	158.3	89.32	-4,360.9	108.4	905.0	675.7	229.32	3.947	
11,400.0	7,846.8	7,916.8	7,916.8	73.4	158.3	89.40	-4,360.9	108.4	820.3	589.1	231.20	3.548	
11,500.0	7,847.5	7,917.5	7,917.5	75.3	158.4	89.49	-4,360.9	108.4	739.4	506.3	233.08	3.172	
11,600.0	7,848.2	7,918.2	7,918.2	77.1	158.4	89.58	-4,360.9	108.4	663.8	428.8	234.97	2.825	
11,700.0	7,848.9	7,918.9	7,918.9	79.0	158.4	89.67	-4,360.9	108.4	595.3	358.5	236.85	2.513	
11,800.0	7,849.6	7,919.6	7,919.6	80.9	158.4	89.75	-4,360.9	108.4	536.9	298.2	238.74	2.249	
11,900.0	7,850.3	7,920.3	7,920.3	82.7	158.4	89.84	-4,360.9	108.4	492.0	251.4	240.63	2.045	
12,000.0	7,851.0	7,921.0	7,921.0	84.6	158.4	89.93	-4,360.9	108.4	464.7	222.2	242.52	1.916	
12,080.8	7,851.6	7,921.6	7,921.6	86.1	158.4	90.00	-4,360.9	108.4	457.6	213.5	244.05	1.875	CC, ES
12,100.0	7,851.7	7,921.7	7,921.7	86.4	158.4	90.02	-4,360.9	108.4	458.0	213.6	244.42	1.874	SF
12,200.0	7,852.4	7,922.4	7,922.4	88.3	158.4	90.10	-4,360.9	108.4	472.9	226.6	246.31	1.920	
12,300.0	7,853.1	7,923.1	7,923.1	90.2	158.5	90.19	-4,360.9	108.4	507.4	259.2	248.20	2.044	
12,400.0	7,853.8	7,923.8	7,923.8	92.1	158.5	90.28	-4,360.9	108.4	557.9	307.8	250.10	2.231	
12,500.0	7,854.5	7,924.5	7,924.5	93.9	158.5	90.37	-4,360.9	108.4	620.6	368.6	252.00	2.463	
12,600.0	7,855.2	7,925.2	7,925.2	95.8	158.5	90.45	-4,360.9	108.4	692.0	438.2	253.89	2.726	
12,700.0	7,855.9	7,925.9	7,925.9	97.7	158.5	90.54	-4,360.9	108.4	769.9	514.1	255.79	3.010	
12,800.0	7,856.6	7,926.6	7,926.6	99.6	158.5	90.63	-4,360.9	108.4	852.4	594.7	257.69	3.308	
12,900.0	7,857.3	7,927.3	7,927.3	101.4	158.5	90.72	-4,360.9	108.4	938.3	678.7	259.59	3.615	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Howard 25-32 (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
2,300.0	2,289.8	2,476.4	2,420.7	5.7	10.1	-17.45	609.7	958.2	999.9	986.1	13.80	72.479	
2,400.0	2,388.8	2,581.5	2,522.3	6.1	10.7	-19.03	617.5	932.5	971.0	956.4	14.62	66.414	
2,500.0	2,487.8	2,680.0	2,617.0	6.4	11.2	-20.66	624.8	906.5	941.0	925.5	15.47	60.837	
2,600.0	2,586.8	2,768.0	2,701.3	6.7	11.7	-22.31	632.7	882.5	912.1	895.8	16.30	55.969	
2,700.0	2,685.8	2,872.3	2,801.2	7.1	12.3	-24.41	642.2	853.9	884.1	866.8	17.26	51.229	
2,800.0	2,784.9	2,975.2	2,900.0	7.4	12.9	-26.41	648.2	826.1	855.2	837.0	18.18	47.041	
2,900.0	2,883.9	3,075.6	2,997.3	7.7	13.4	-28.20	650.1	801.3	826.3	807.3	19.03	43.431	
3,000.0	2,982.9	3,174.4	3,093.0	8.1	13.8	-30.04	650.6	776.6	797.0	777.1	19.87	40.111	
3,100.0	3,081.9	3,256.9	3,173.0	8.4	14.2	-31.62	650.6	756.5	768.6	748.0	20.62	37.279	
3,200.0	3,180.9	3,332.1	3,246.3	8.7	14.5	-33.06	651.1	740.1	743.0	721.7	21.30	34.873	
3,300.0	3,279.9	3,408.1	3,321.1	9.1	14.8	-34.42	651.8	726.3	720.4	698.5	21.97	32.799	
3,400.0	3,378.9	3,482.0	3,394.1	9.4	15.1	-35.70	653.0	715.0	700.9	678.3	22.59	31.024	
3,500.0	3,477.9	3,573.0	3,484.4	9.7	15.3	-37.20	655.0	703.7	684.0	660.7	23.27	29.400	
3,600.0	3,576.9	3,661.0	3,571.9	10.1	15.5	-38.55	656.9	695.0	669.0	645.1	23.89	28.002	
3,700.0	3,676.0	3,739.5	3,650.2	10.4	15.7	-39.70	659.2	689.0	656.3	631.9	24.46	26.835	
3,800.0	3,775.0	3,837.3	3,747.8	10.8	15.9	-40.87	661.7	685.3	645.7	620.7	25.02	25.807	
3,900.0	3,874.0	3,933.1	3,843.6	11.1	16.0	-41.77	662.5	684.4	635.4	609.9	25.52	24.903	
4,000.0	3,973.0	4,035.2	3,945.7	11.4	16.1	-42.75	663.3	683.7	625.3	599.3	26.02	24.029	
4,100.0	4,072.0	4,135.0	4,045.5	11.8	16.2	-43.71	663.6	682.9	614.9	588.4	26.53	23.182	
4,200.0	4,171.0	4,234.0	4,144.5	12.1	16.3	-44.72	664.0	682.1	604.8	577.7	27.03	22.370	
4,300.0	4,270.0	4,332.9	4,243.4	12.5	16.5	-45.74	664.3	681.3	594.8	567.2	27.55	21.592	
4,400.0	4,369.0	4,431.9	4,342.4	12.8	16.6	-46.72	664.2	681.3	584.9	556.9	28.04	20.863	
4,500.0	4,468.0	4,532.3	4,442.8	13.1	16.7	-47.64	663.7	682.2	575.2	546.7	28.52	20.167	
4,600.0	4,567.1	4,632.2	4,542.7	13.5	16.8	-48.62	662.9	682.7	565.3	536.3	29.01	19.486	
4,700.0	4,666.1	4,729.8	4,640.3	13.8	16.9	-49.61	662.4	683.2	555.8	526.2	29.51	18.836	
4,800.0	4,765.1	4,829.1	4,739.6	14.2	17.0	-50.65	661.9	683.7	546.5	516.5	30.00	18.213	
4,900.0	4,864.1	4,928.8	4,839.3	14.5	17.1	-51.72	661.3	684.4	537.3	506.8	30.50	17.614	
5,000.0	4,963.1	5,028.3	4,938.8	14.9	17.2	-52.81	660.4	685.2	528.2	497.2	31.00	17.036	
5,100.0	5,062.1	5,126.9	5,037.3	15.2	17.3	-53.91	659.7	686.0	519.3	487.8	31.50	16.482	
5,200.0	5,161.1	5,227.2	5,137.7	15.5	17.5	-55.10	658.9	686.7	510.5	478.5	32.02	15.945	
5,300.0	5,260.2	5,325.4	5,235.8	15.9	17.6	-56.16	658.0	687.1	502.2	469.7	32.50	15.452	
5,400.0	5,359.7	5,422.4	5,332.9	16.1	17.7	-56.90	657.5	688.0	496.4	463.5	32.89	15.092	
5,500.0	5,459.5	5,520.3	5,430.7	16.3	17.8	-57.38	657.4	688.8	492.9	459.7	33.23	14.835	
5,600.0	5,559.4	5,620.0	5,530.5	16.4	17.9	-57.54	657.6	690.0	491.6	458.1	33.51	14.670	
5,624.8	5,584.2	5,644.9	5,555.3	16.5	18.0	-57.52	657.6	690.4	491.5	458.0	33.58	14.639	CC
5,700.0	5,659.4	5,720.7	5,631.2	16.6	18.1	14.80	657.5	691.7	491.8	458.0	33.77	14.564	
5,800.0	5,759.4	5,821.6	5,732.1	16.7	18.2	14.94	657.3	692.8	491.9	457.9	34.06	14.445	
5,900.0	5,859.4	5,920.5	5,831.0	16.9	18.3	14.98	657.4	693.3	492.1	457.8	34.36	14.323	
6,000.0	5,959.4	6,020.9	5,931.3	17.1	18.5	14.96	657.7	693.1	492.4	457.7	34.68	14.199	
6,100.0	6,059.4	6,120.8	6,031.2	17.2	18.6	14.87	658.1	692.5	492.6	457.6	35.01	14.071	
6,200.0	6,159.4	6,220.1	6,130.5	17.4	18.8	14.72	658.7	691.3	492.9	457.6	35.35	13.944	ES
6,300.0	6,259.4	6,319.1	6,229.5	17.6	18.9	14.54	659.6	689.9	493.4	457.7	35.70	13.821	
6,400.0	6,359.4	6,419.4	6,329.8	17.7	19.1	14.35	660.6	688.5	494.0	457.9	36.05	13.702	
6,500.0	6,459.4	6,519.9	6,430.3	17.9	19.3	14.15	661.5	686.9	494.5	458.1	36.41	13.580	
6,600.0	6,559.4	6,620.2	6,530.6	18.1	19.4	13.91	662.4	685.0	494.9	458.1	36.78	13.456	
6,700.0	6,659.4	6,719.9	6,630.2	18.3	19.6	13.63	663.3	682.8	495.3	458.1	37.15	13.332	
6,800.0	6,759.4	6,820.3	6,730.6	18.4	19.8	13.35	664.3	680.5	495.7	458.2	37.52	13.212	
6,900.0	6,859.4	6,918.3	6,828.5	18.6	20.0	13.14	665.2	678.8	496.2	458.3	37.88	13.099	
7,000.0	6,959.4	7,014.3	6,924.5	18.8	20.1	13.04	666.5	678.2	497.4	459.2	38.22	13.015	
7,100.0	7,059.4	7,118.7	7,028.9	19.0	20.3	12.96	667.8	677.9	498.6	460.0	38.57	12.926	SF
7,200.0	7,159.1	7,220.8	7,131.1	19.1	20.4	-167.17	668.4	677.2	505.1	466.5	38.57	13.095	

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 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Howard 25-32 (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
7,300.0	7,257.2	7,321.8	7,232.1	19.2	20.6	-167.42	668.5	676.6	523.9	485.9	38.06	13.767	
7,400.0	7,351.9	7,421.5	7,331.8	19.3	20.8	-167.71	667.9	676.1	554.4	517.4	37.04	14.968	
7,500.0	7,441.6	7,521.2	7,431.4	19.4	20.9	-168.02	665.9	675.6	595.8	560.2	35.57	16.751	
7,600.0	7,524.8	7,605.4	7,515.6	19.4	21.1	-168.13	663.5	674.9	647.8	614.1	33.68	19.232	
7,700.0	7,600.1	7,679.1	7,589.2	19.5	21.2	-168.01	661.8	674.1	710.7	679.2	31.49	22.572	
7,800.0	7,666.2	7,744.9	7,655.0	19.7	21.3	-167.56	660.5	673.3	783.5	754.3	29.13	26.892	
7,900.0	7,721.9	7,800.4	7,710.5	19.9	21.4	-166.51	659.5	672.6	864.7	837.8	26.83	32.226	
8,000.0	7,766.3	7,843.7	7,753.8	20.3	21.4	-164.33	658.8	672.0	952.8	927.9	24.93	38.225	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Howard 3C-29HZ (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-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	-48.38	436.1	-490.8	657.0				
100.0	100.0	76.0	76.0	0.1	1.5	-48.38	436.1	-490.8	656.5	654.9	1.63	402.175	
200.0	200.0	176.0	176.0	0.3	5.0	-48.38	436.1	-490.8	656.5	651.1	5.38	122.095	
300.0	300.0	276.0	276.0	0.6	9.0	-48.38	436.1	-490.8	656.5	646.9	9.60	68.374	
400.0	400.0	376.0	376.0	0.8	13.0	-48.38	436.1	-490.8	656.5	642.7	13.83	47.482	
500.0	500.0	476.0	476.0	1.0	17.0	-48.38	436.1	-490.8	656.5	638.5	18.05	36.370	
600.0	600.0	576.0	576.0	1.2	21.0	-48.38	436.1	-490.8	656.5	634.2	22.28	29.472	
700.0	700.0	676.0	676.0	1.5	25.0	-48.38	436.1	-490.8	656.5	630.0	26.50	24.774	
800.0	800.0	776.0	776.0	1.7	29.0	-48.38	436.1	-490.8	656.5	625.8	30.73	21.367	
900.0	900.0	876.0	876.0	1.9	33.0	-48.38	436.1	-490.8	656.5	621.6	34.95	18.784	
1,000.0	1,000.0	976.0	976.0	2.1	37.0	-48.38	436.1	-490.8	656.5	617.3	39.18	16.759	
1,100.0	1,100.0	1,076.0	1,076.0	2.4	41.0	-120.67	436.1	-490.8	657.4	614.0	43.38	15.154	
1,200.0	1,199.8	1,175.8	1,175.8	2.6	45.0	-121.01	436.1	-490.8	660.1	612.5	47.56	13.878	
1,300.0	1,299.5	1,275.5	1,275.5	2.8	49.0	-121.58	436.1	-490.8	664.6	612.9	51.72	12.850	
1,400.0	1,398.7	1,396.3	1,396.3	3.0	51.2	-122.53	435.4	-489.3	669.9	615.9	54.06	12.391	
1,500.0	1,497.7	1,524.7	1,524.4	3.3	49.7	-123.65	432.6	-482.7	672.2	619.4	52.80	12.732	
1,600.0	1,596.7	1,653.3	1,652.4	3.6	48.6	-124.64	427.5	-470.8	670.4	618.4	51.93	12.909	
1,700.0	1,695.7	1,781.8	1,779.5	3.9	48.2	-125.52	420.2	-453.6	664.3	612.7	51.57	12.881	
1,800.0	1,794.7	1,885.2	1,881.4	4.2	48.3	-126.18	413.2	-437.1	655.6	603.8	51.75	12.667	
1,900.0	1,893.8	1,984.6	1,979.3	4.5	48.8	-126.83	406.4	-421.3	646.9	594.6	52.28	12.373	
2,000.0	1,992.8	2,083.9	2,077.1	4.8	49.7	-127.50	399.6	-405.4	638.3	585.2	53.14	12.012	
2,100.0	2,091.8	2,183.3	2,174.9	5.1	50.9	-128.19	392.9	-389.5	629.8	575.5	54.30	11.598	
2,200.0	2,190.8	2,282.6	2,272.8	5.4	52.5	-128.89	386.1	-373.7	621.4	565.6	55.77	11.143	
2,300.0	2,289.8	2,382.0	2,370.6	5.7	54.4	-129.62	379.3	-357.8	613.1	555.6	57.50	10.662	
2,400.0	2,388.8	2,481.3	2,468.4	6.1	56.5	-130.36	372.6	-341.9	604.9	545.4	59.49	10.168	
2,500.0	2,487.8	2,580.7	2,566.3	6.4	58.9	-131.13	365.8	-326.1	596.8	535.1	61.70	9.672	
2,600.0	2,586.8	2,680.0	2,664.1	6.7	61.6	-131.91	359.0	-310.2	588.8	524.7	64.12	9.182	
2,700.0	2,685.8	2,779.4	2,762.0	7.1	64.4	-132.72	352.3	-294.3	580.9	514.2	66.72	8.707	
2,800.0	2,784.9	2,878.7	2,859.8	7.4	67.4	-133.55	345.5	-278.5	573.1	503.6	69.48	8.249	
2,900.0	2,883.9	2,978.1	2,957.6	7.7	70.5	-134.40	338.7	-262.6	565.5	493.1	72.38	7.812	
3,000.0	2,982.9	3,077.4	3,055.5	8.1	73.7	-135.28	332.0	-246.7	558.0	482.6	75.41	7.399	
3,100.0	3,081.9	3,176.8	3,153.3	8.4	77.1	-136.18	325.2	-230.9	550.6	472.0	78.56	7.009	
3,200.0	3,180.9	3,276.1	3,251.2	8.7	80.5	-137.10	318.4	-215.0	543.4	461.6	81.80	6.642	
3,300.0	3,279.9	3,375.5	3,349.0	9.1	84.1	-138.04	311.7	-199.1	536.3	451.1	85.13	6.299	
3,400.0	3,378.9	3,474.8	3,446.8	9.4	87.7	-139.02	304.9	-183.2	529.3	440.8	88.54	5.978	
3,500.0	3,477.9	3,574.2	3,544.7	9.7	91.4	-140.01	298.1	-167.4	522.5	430.5	92.03	5.678	
3,600.0	3,576.9	3,673.5	3,642.5	10.1	95.1	-141.03	291.3	-151.5	515.9	420.3	95.58	5.398	
3,700.0	3,676.0	3,772.9	3,740.3	10.4	98.9	-142.08	284.6	-135.6	509.5	410.3	99.19	5.136	
3,800.0	3,775.0	3,872.2	3,838.2	10.8	102.7	-143.16	277.8	-119.8	503.2	400.3	102.85	4.892	
3,900.0	3,874.0	3,971.5	3,936.0	11.1	106.6	-144.26	271.0	-103.9	497.1	390.5	106.57	4.665	
4,000.0	3,973.0	4,070.9	4,033.9	11.4	110.5	-145.39	264.3	-88.0	491.2	380.8	110.33	4.452	
4,100.0	4,072.0	4,170.2	4,131.7	11.8	114.5	-146.54	257.5	-72.2	485.5	371.3	114.14	4.253	
4,200.0	4,171.0	4,269.6	4,229.5	12.1	118.4	-147.72	250.7	-56.3	480.0	362.0	118.00	4.068	
4,300.0	4,270.0	4,368.9	4,327.4	12.5	122.4	-148.93	244.0	-40.4	474.7	352.8	121.90	3.894	
4,400.0	4,369.0	4,468.3	4,425.2	12.8	126.5	-150.16	237.2	-24.6	469.6	343.7	125.84	3.732	
4,500.0	4,468.0	4,567.6	4,523.1	13.1	130.5	-151.43	230.4	-8.7	464.7	334.9	129.82	3.580	
4,600.0	4,567.1	4,667.0	4,620.9	13.5	134.6	-152.71	223.7	7.2	460.1	326.3	133.84	3.438	
4,700.0	4,666.1	4,766.3	4,718.7	13.8	138.7	-154.02	216.9	23.0	455.7	317.8	137.90	3.305	
4,800.0	4,765.1	4,865.7	4,816.6	14.2	142.8	-155.36	210.1	38.9	451.6	309.6	142.01	3.180	
4,900.0	4,864.1	4,965.0	4,914.4	14.5	146.9	-156.72	203.4	54.8	447.7	301.5	146.16	3.063	
5,000.0	4,963.1	5,052.0	5,000.3	14.9	150.4	-157.88	197.9	67.6	445.4	295.6	149.85	2.972	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Howard 3C-29HZ (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-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
5,024.1	4,987.0	5,072.9	5,021.0	14.9	151.3	-158.14	196.7	70.3	445.3	294.6	150.74	2.954	CC
5,100.0	5,062.1	5,138.8	5,086.3	15.2	153.9	-158.93	193.5	77.9	446.2	292.7	153.53	2.906	
5,200.0	5,161.1	5,225.6	5,172.7	15.5	157.2	-159.86	190.1	85.9	450.0	292.8	157.19	2.863	
5,300.0	5,260.2	5,312.4	5,259.3	15.9	160.5	-160.66	187.7	91.4	456.1	295.4	160.68	2.839	
5,400.0	5,359.7	5,400.0	5,346.8	16.1	163.6	-161.22	186.4	94.5	462.1	298.2	163.91	2.819	
5,500.0	5,459.5	5,488.7	5,435.5	16.3	164.7	-161.53	186.1	95.3	467.5	302.7	164.75	2.838	
5,600.0	5,559.4	5,588.6	5,535.4	16.4	164.5	-161.67	186.1	95.3	470.5	306.4	164.04	2.868	
5,700.0	5,659.4	5,688.6	5,635.4	16.6	164.4	-89.50	186.1	95.3	470.8	307.0	163.78	2.874	
5,800.0	5,759.4	5,788.6	5,735.4	16.7	164.4	-89.50	186.1	95.3	470.8	306.8	163.98	2.871	
5,900.0	5,859.4	5,888.6	5,835.4	16.9	164.5	-89.50	186.1	95.3	470.8	306.5	164.28	2.866	
6,000.0	5,959.4	5,988.6	5,935.4	17.1	164.7	-89.50	186.1	95.3	470.8	306.1	164.69	2.858	
6,100.0	6,059.4	6,088.6	6,035.4	17.2	165.0	-89.50	186.1	95.3	470.8	305.5	165.21	2.849	
6,200.0	6,159.4	6,188.6	6,135.4	17.4	165.4	-89.50	186.1	95.3	470.8	304.9	165.84	2.839	
6,300.0	6,259.4	6,288.6	6,235.4	17.6	165.9	-89.50	186.1	95.3	470.8	304.2	166.56	2.826	
6,400.0	6,359.4	6,388.6	6,335.4	17.7	166.5	-89.50	186.1	95.3	470.8	303.4	167.40	2.812	
6,500.0	6,459.4	6,488.6	6,435.4	17.9	167.2	-89.50	186.1	95.3	470.8	302.4	168.33	2.797	
6,600.0	6,559.4	6,588.6	6,535.4	18.1	167.9	-89.50	186.1	95.3	470.8	301.4	169.37	2.780	
6,700.0	6,659.4	6,688.6	6,635.4	18.3	168.8	-89.50	186.1	95.3	470.8	300.3	170.50	2.761	
6,800.0	6,759.4	6,788.6	6,735.4	18.4	169.7	-89.50	186.1	95.3	470.8	299.0	171.73	2.741	
6,900.0	6,859.4	6,888.6	6,835.4	18.6	170.8	-89.50	186.1	95.3	470.8	297.7	173.06	2.720	
7,000.0	6,959.4	6,988.6	6,935.4	18.8	171.9	-89.50	186.1	95.3	470.8	296.3	174.48	2.698	
7,100.0	7,059.4	7,088.6	7,035.4	19.0	173.1	-89.50	186.1	95.3	470.8	294.8	176.00	2.675	
7,200.0	7,159.1	7,188.3	7,135.1	19.1	174.4	91.25	186.1	95.3	470.9	293.3	177.51	2.653	
7,300.0	7,257.2	7,286.4	7,233.2	19.2	175.8	93.48	186.1	95.3	471.7	292.6	179.09	2.634	ES
7,400.0	7,351.9	7,377.6	7,324.4	19.3	177.1	96.83	187.0	95.3	474.9	294.1	180.77	2.627	SF
7,500.0	7,441.6	7,450.0	7,396.2	19.4	178.0	100.72	195.6	95.3	485.1	302.9	182.15	2.663	
7,600.0	7,524.8	7,500.0	7,444.9	19.4	178.6	103.20	206.8	95.3	507.6	324.7	182.95	2.775	
7,700.0	7,600.1	7,540.9	7,483.9	19.5	179.1	104.18	219.1	95.3	545.4	361.9	183.57	2.971	
7,800.0	7,666.2	7,563.5	7,505.1	19.7	179.3	102.06	227.1	95.3	598.1	413.7	184.48	3.242	
7,900.0	7,721.9	7,575.0	7,515.7	19.9	179.4	97.05	231.5	95.3	663.0	477.5	185.53	3.574	
8,000.0	7,766.3	7,578.0	7,518.4	20.3	179.5	89.24	232.7	95.3	736.7	552.0	184.72	3.988	
8,100.0	7,798.7	7,574.5	7,515.2	20.8	179.4	79.15	231.3	95.3	815.9	637.4	178.44	4.572	
8,200.0	7,818.4	7,565.9	7,507.3	21.6	179.4	67.98	228.0	95.3	897.7	733.4	164.31	5.464	
8,300.0	7,825.2	7,550.0	7,492.5	22.4	179.2	57.22	222.3	95.3	980.2	835.6	144.59	6.779	

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 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Jacobucci 23-32 (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	0.0	0.0	0.0	0.0	-144.74	-320.9	-226.9	393.3				
100.0	100.0	88.0	88.0	0.1	0.1	-144.77	-321.0	-226.7	392.9	392.7	0.23	1,714.353	
200.0	200.0	189.2	189.2	0.3	0.4	-144.82	-320.8	-226.2	392.5	391.9	0.69	568.710	
300.0	300.0	290.1	290.1	0.6	0.6	-144.82	-320.3	-225.8	391.9	390.7	1.15	340.505	
400.0	400.0	389.8	389.8	0.8	0.8	-144.76	-319.4	-225.7	391.1	389.5	1.59	245.289	
500.0	500.0	489.5	489.5	1.0	1.0	-144.64	-318.4	-225.9	390.4	388.4	2.03	192.272	
600.0	600.0	589.0	589.0	1.2	1.2	-144.46	-317.2	-226.6	389.8	387.4	2.47	158.101	
700.0	700.0	687.5	687.5	1.5	1.4	-144.25	-316.1	-227.6	389.5	386.6	2.89	134.573	
800.0	800.0	787.3	787.3	1.7	1.6	-144.03	-315.2	-228.7	389.4	386.1	3.33	116.953	
879.5	879.5	866.5	866.5	1.9	1.8	-143.85	-314.4	-229.7	389.4	385.7	3.68	105.712	CC
900.0	900.0	887.0	886.9	1.9	1.9	-143.80	-314.2	-230.0	389.4	385.6	3.78	103.148	
1,000.0	1,000.0	987.1	987.0	2.1	2.1	-143.51	-313.1	-231.6	389.4	385.2	4.23	92.055	
1,000.2	1,000.2	987.3	987.3	2.1	2.1	-143.51	-313.1	-231.6	389.4	385.2	4.23	92.033	ES
1,100.0	1,100.0	1,087.4	1,087.3	2.4	2.3	144.79	-311.6	-233.4	390.8	386.1	4.69	83.382	
1,200.0	1,199.8	1,187.1	1,187.0	2.6	2.6	145.55	-310.0	-235.4	395.0	389.9	5.14	76.868	
1,300.0	1,299.5	1,285.9	1,285.7	2.8	2.8	146.54	-308.5	-237.5	402.3	396.7	5.59	71.938	
1,400.0	1,398.7	1,383.8	1,383.6	3.0	3.1	147.68	-307.2	-239.6	412.9	406.9	6.04	68.308	
1,500.0	1,497.7	1,481.8	1,481.6	3.3	3.3	148.98	-306.2	-241.7	425.5	419.0	6.51	65.330	
1,600.0	1,596.7	1,579.4	1,579.1	3.6	3.5	150.21	-305.3	-244.0	438.5	431.5	6.98	62.794	
1,700.0	1,695.7	1,676.7	1,676.4	3.9	3.8	151.37	-304.6	-246.5	452.0	444.6	7.45	60.649	
1,800.0	1,794.7	1,775.5	1,775.1	4.2	4.0	152.49	-304.0	-249.1	465.9	457.9	7.93	58.764	
1,900.0	1,893.8	1,874.8	1,874.4	4.5	4.2	153.53	-303.3	-251.7	479.8	471.3	8.41	57.052	
2,000.0	1,992.8	1,973.6	1,973.2	4.8	4.5	154.52	-302.6	-254.2	493.7	484.8	8.90	55.503	
2,100.0	2,091.8	2,073.1	2,072.7	5.1	4.7	155.47	-301.8	-256.6	507.7	498.3	9.39	54.087	
2,200.0	2,190.8	2,172.3	2,171.9	5.4	5.0	156.35	-300.9	-259.0	521.7	511.8	9.88	52.794	
2,300.0	2,289.8	2,271.3	2,270.8	5.7	5.2	157.18	-300.1	-261.2	535.7	525.3	10.38	51.626	
2,400.0	2,388.8	2,369.8	2,369.2	6.1	5.5	157.95	-299.3	-263.3	549.8	539.0	10.87	50.579	
2,500.0	2,487.8	2,468.1	2,467.6	6.4	5.7	158.68	-298.6	-265.4	564.1	552.8	11.36	49.638	
2,600.0	2,586.8	2,566.7	2,566.2	6.7	6.0	159.39	-297.7	-267.8	578.5	566.7	11.86	48.781	
2,700.0	2,685.8	2,666.9	2,666.3	7.1	6.3	160.09	-296.8	-270.1	593.0	580.6	12.36	47.970	
2,800.0	2,784.9	2,767.1	2,766.4	7.4	6.5	160.75	-295.6	-272.2	607.2	594.3	12.86	47.195	
2,900.0	2,883.9	2,866.3	2,865.6	7.7	6.8	161.36	-294.6	-274.0	621.3	607.9	13.37	46.479	
3,000.0	2,982.9	2,965.1	2,964.4	8.1	7.0	161.92	-293.7	-275.7	635.5	621.6	13.87	45.821	
3,100.0	3,081.9	3,062.4	3,061.7	8.4	7.3	162.45	-292.8	-277.4	649.8	635.4	14.36	45.236	
3,200.0	3,180.9	3,156.4	3,155.7	8.7	7.5	162.94	-292.3	-279.4	664.6	649.7	14.85	44.763	
3,300.0	3,279.9	3,244.2	3,243.5	9.1	7.8	163.40	-292.1	-282.2	680.5	665.2	15.30	44.460	
3,400.0	3,378.9	3,329.8	3,328.9	9.4	8.0	163.88	-292.2	-286.7	698.4	682.6	15.75	44.335	
3,500.0	3,477.9	3,424.7	3,423.6	9.7	8.2	164.49	-292.1	-293.4	717.6	701.4	16.22	44.241	
3,600.0	3,576.9	3,537.7	3,536.4	10.1	8.5	165.20	-291.1	-300.4	735.8	719.1	16.74	43.957	
3,700.0	3,676.0	3,648.0	3,646.6	10.4	8.8	165.78	-289.7	-305.0	752.3	735.0	17.26	43.580	
3,800.0	3,775.0	3,754.3	3,752.8	10.8	9.1	166.24	-288.6	-307.8	767.5	749.7	17.78	43.169	
3,900.0	3,874.0	3,856.0	3,854.5	11.1	9.3	166.61	-287.7	-309.4	782.1	763.8	18.29	42.765	
4,000.0	3,973.0	3,954.8	3,953.3	11.4	9.6	166.95	-286.9	-310.9	796.5	777.8	18.79	42.395	
4,100.0	4,072.0	4,057.3	4,055.8	11.8	9.9	167.29	-285.9	-312.3	811.0	791.7	19.30	42.028	
4,200.0	4,171.0	4,163.6	4,162.0	12.1	10.1	167.61	-284.8	-312.9	824.6	804.9	19.76	41.737	
4,300.0	4,270.0	4,265.7	4,264.2	12.5	10.2	167.85	-284.1	-312.4	837.6	817.4	20.13	41.615	
4,400.0	4,369.0	4,363.1	4,361.6	12.8	10.3	168.05	-283.7	-311.7	850.5	830.1	20.43	41.623	
4,500.0	4,468.0	4,458.9	4,457.3	13.1	10.3	168.21	-283.8	-311.2	863.8	843.1	20.70	41.724	
4,600.0	4,567.1	4,556.8	4,555.2	13.5	10.3	168.35	-284.2	-310.8	877.4	856.4	20.96	41.867	
4,700.0	4,666.1	4,654.7	4,653.2	13.8	10.3	168.50	-284.6	-310.4	891.0	869.8	21.22	41.992	
4,800.0	4,765.1	4,751.8	4,750.2	14.2	10.4	168.63	-285.3	-310.2	904.9	883.4	21.50	42.092	

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 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Jacobucci 23-32 (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
4,900.0	4,864.1	4,849.5	4,847.9	14.5	10.4	168.72	-286.6	-309.8	918.9	897.1	21.79	42.168	
5,000.0	4,963.1	4,946.6	4,945.0	14.9	10.5	168.79	-288.0	-309.4	933.1	911.0	22.10	42.226	
5,100.0	5,062.1	5,044.4	5,042.8	15.2	10.5	168.86	-289.8	-309.2	947.5	925.1	22.42	42.271	
5,200.0	5,161.1	5,147.4	5,145.7	15.5	10.6	168.90	-291.8	-308.7	961.8	939.1	22.74	42.304	
5,300.0	5,260.2	5,254.2	5,252.6	15.9	10.7	168.94	-294.0	-307.3	974.8	951.7	23.06	42.267	
5,400.0	5,359.7	5,357.3	5,355.6	16.1	10.7	168.94	-295.8	-305.3	983.9	960.6	23.34	42.158	
5,500.0	5,459.5	5,456.9	5,455.2	16.3	10.8	168.90	-297.6	-303.4	989.5	966.0	23.59	41.953	
5,600.0	5,559.4	5,554.3	5,552.6	16.4	10.8	168.80	-299.3	-301.5	991.9	968.0	23.81	41.655	
5,700.0	5,659.4	5,650.6	5,648.8	16.6	10.9	-119.15	-301.0	-300.1	991.7	967.7	24.05	41.228	
5,786.0	5,745.5	5,734.3	5,732.5	16.7	11.0	-119.25	-302.5	-299.2	991.6	967.3	24.30	40.809	
5,800.0	5,759.4	5,748.0	5,746.2	16.7	11.0	-119.26	-302.7	-299.0	991.6	967.3	24.34	40.741	
5,900.0	5,859.4	5,844.6	5,842.7	16.9	11.1	-119.38	-304.5	-298.2	991.8	967.1	24.64	40.248	
6,000.0	5,959.4	5,943.4	5,941.6	17.1	11.2	-119.45	-305.9	-298.1	992.3	967.4	24.97	39.748	
6,100.0	6,059.4	6,048.3	6,046.4	17.2	11.3	-119.48	-306.5	-298.0	992.6	967.3	25.30	39.232	
6,200.0	6,159.4	6,152.8	6,150.9	17.4	11.5	-119.48	-306.4	-297.8	992.3	966.7	25.64	38.709	
6,300.0	6,259.4	6,254.9	6,253.1	17.6	11.6	-119.45	-305.6	-297.5	991.7	965.7	25.99	38.152	
6,400.0	6,359.4	6,353.6	6,351.7	17.7	11.8	-119.39	-304.4	-297.5	991.1	964.7	26.38	37.573	
6,500.0	6,459.4	6,451.8	6,450.0	17.9	12.0	-119.31	-303.0	-297.8	990.7	963.9	26.78	36.995	
6,600.0	6,559.4	6,550.8	6,548.9	18.1	12.2	-119.22	-301.5	-298.3	990.3	963.2	27.19	36.422	
6,700.0	6,659.4	6,658.4	6,656.6	18.3	12.5	-119.12	-299.8	-298.7	989.9	962.3	27.61	35.854	
6,800.0	6,759.4	6,769.0	6,767.1	18.4	12.6	-119.05	-297.8	-297.7	988.3	960.3	28.00	35.292	
6,900.0	6,859.4	6,877.5	6,875.5	18.6	12.8	-118.98	-295.5	-295.9	985.8	957.4	28.38	34.739	
7,000.0	6,959.4	6,986.2	6,984.2	18.8	13.0	-118.90	-292.5	-293.3	982.4	953.6	28.75	34.169	
7,100.0	7,059.4	7,090.4	7,088.3	19.0	13.1	-118.83	-289.3	-290.2	978.3	949.2	29.12	33.598	
7,200.0	7,159.1	7,199.4	7,197.1	19.1	13.3	62.12	-285.6	-286.3	970.5	941.2	29.34	33.078	
7,300.0	7,257.2	7,303.9	7,301.5	19.2	13.5	64.25	-281.8	-281.7	956.0	926.6	29.47	32.446	
7,400.0	7,351.9	7,404.3	7,401.7	19.3	13.6	67.55	-277.9	-276.6	935.9	906.3	29.59	31.628	
7,500.0	7,441.6	7,498.1	7,495.2	19.4	13.8	71.90	-273.3	-271.4	911.5	881.7	29.81	30.576	
7,600.0	7,524.8	7,589.2	7,586.0	19.4	13.9	77.28	-267.6	-265.9	885.1	854.9	30.21	29.303	
7,700.0	7,600.1	7,663.4	7,659.8	19.5	14.1	82.69	-262.4	-261.0	859.4	828.7	30.69	28.000	
7,800.0	7,666.2	7,727.8	7,724.0	19.7	14.2	87.83	-258.2	-256.4	837.7	806.5	31.21	26.836	
7,900.0	7,721.9	7,782.8	7,778.6	19.9	14.3	92.23	-254.9	-252.1	823.0	791.3	31.74	25.926	
7,993.6	7,763.8	7,824.1	7,819.8	20.3	14.3	95.26	-252.6	-248.6	818.1	785.8	32.29	25.338	
8,000.0	7,766.3	7,826.6	7,822.2	20.3	14.3	95.41	-252.5	-248.4	818.1	785.8	32.32	25.311	
8,100.0	7,798.7	7,857.4	7,852.9	20.8	14.4	96.97	-250.9	-245.7	825.1	792.0	33.05	24.961	
8,200.0	7,818.4	7,874.1	7,869.5	21.6	14.4	96.63	-250.1	-244.2	844.7	810.7	34.00	24.842	SF
8,300.0	7,825.2	7,876.1	7,871.5	22.4	14.4	94.35	-250.0	-244.0	876.7	841.6	35.11	24.969	
8,400.0	7,825.9	7,871.1	7,866.5	23.5	14.4	94.00	-250.2	-244.4	919.0	882.8	36.23	25.367	
8,500.0	7,826.6	7,866.0	7,861.4	24.6	14.4	93.64	-250.5	-244.9	969.8	932.3	37.45	25.896	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Jacobucci 24-32 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 8585-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
9,100.0	7,830.8	7,855.8	7,855.8	33.0	157.1	89.37	-2,163.9	70.0	927.5	738.6	188.91	4.910	
9,200.0	7,831.5	7,856.5	7,856.5	34.6	157.1	89.45	-2,163.9	70.0	844.7	654.1	190.55	4.433	
9,300.0	7,832.2	7,857.2	7,857.2	36.2	157.1	89.53	-2,163.9	70.0	766.0	573.8	192.23	3.985	
9,400.0	7,832.8	7,857.8	7,857.8	37.8	157.2	89.61	-2,163.9	70.0	692.8	498.9	193.93	3.573	
9,500.0	7,833.5	7,858.5	7,858.5	39.5	157.2	89.69	-2,163.9	70.0	627.1	431.5	195.65	3.205	
9,600.0	7,834.2	7,859.2	7,859.2	41.2	157.2	89.77	-2,163.9	70.0	571.4	374.0	197.39	2.895	
9,700.0	7,834.9	7,859.9	7,859.9	42.9	157.2	89.85	-2,163.9	70.0	528.9	329.8	199.15	2.656	
9,800.0	7,835.6	7,860.6	7,860.6	44.6	157.2	89.93	-2,163.9	70.0	503.0	302.1	200.92	2.504	
9,883.8	7,836.2	7,861.2	7,861.2	46.0	157.2	90.00	-2,163.9	70.0	496.0	293.6	202.42	2.450	CC
9,900.0	7,836.3	7,861.3	7,861.3	46.3	157.2	90.01	-2,163.9	70.0	496.3	293.6	202.71	2.448	ES, SF
10,000.0	7,837.0	7,862.0	7,862.0	48.1	157.2	90.09	-2,163.9	70.0	509.4	304.9	204.50	2.491	
10,100.0	7,837.7	7,862.7	7,862.7	49.8	157.3	90.17	-2,163.9	70.0	541.1	334.8	206.31	2.623	
10,200.0	7,838.4	7,863.4	7,863.4	51.6	157.3	90.26	-2,163.9	70.0	588.2	380.1	208.12	2.826	
10,300.0	7,839.1	7,864.1	7,864.1	53.4	157.3	90.34	-2,163.9	70.0	647.5	437.6	209.94	3.084	
10,400.0	7,839.8	7,864.8	7,864.8	55.2	157.3	90.42	-2,163.9	70.0	715.9	504.1	211.77	3.380	
10,500.0	7,840.5	7,865.5	7,865.5	57.0	157.3	90.50	-2,163.9	70.0	791.0	577.4	213.61	3.703	
10,600.0	7,841.2	7,866.2	7,866.2	58.8	157.3	90.58	-2,163.9	70.0	871.2	655.8	215.45	4.044	
10,700.0	7,841.9	7,866.9	7,866.9	60.6	157.3	90.66	-2,163.9	70.0	955.1	737.8	217.29	4.395	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Jacobucci 33-32 (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
1,700.0	1,695.7	1,709.7	1,709.6	3.9	3.9	43.58	-404.7	964.6	994.0	986.4	7.65	129.918	
1,800.0	1,794.7	1,811.3	1,811.2	4.2	4.2	44.18	-404.1	962.8	982.1	974.0	8.15	120.538	
1,900.0	1,893.8	1,909.4	1,909.3	4.5	4.4	44.77	-403.7	961.1	970.3	961.6	8.65	112.214	
2,000.0	1,992.8	2,012.5	2,012.4	4.8	4.7	45.41	-403.2	958.9	958.2	949.1	9.16	104.566	
2,100.0	2,091.8	2,109.5	2,109.3	5.1	4.9	46.02	-402.5	956.9	946.2	936.5	9.68	97.759	
2,200.0	2,190.8	2,209.4	2,209.2	5.4	5.1	46.67	-401.9	954.9	934.4	924.2	10.21	91.535	
2,300.0	2,289.8	2,311.9	2,311.7	5.7	5.4	47.36	-401.2	952.4	922.4	911.6	10.75	85.808	
2,400.0	2,388.8	2,411.0	2,410.8	6.1	5.6	48.02	-400.1	950.0	910.2	898.9	11.29	80.594	
2,500.0	2,487.8	2,504.9	2,504.7	6.4	5.9	48.64	-398.9	948.2	898.5	886.7	11.83	75.924	
2,600.0	2,586.8	2,605.8	2,605.6	6.7	6.2	49.33	-397.7	946.3	887.0	874.6	12.40	71.544	
2,700.0	2,685.8	2,706.4	2,706.1	7.1	6.4	50.03	-396.3	944.2	875.4	862.4	12.97	67.518	
2,800.0	2,784.9	2,800.0	2,799.7	7.4	6.7	50.70	-395.2	942.5	864.2	850.7	13.52	63.936	
2,900.0	2,883.9	2,892.7	2,892.3	7.7	6.9	51.40	-394.8	941.1	853.8	839.8	14.06	60.744	
3,000.0	2,982.9	2,988.8	2,988.4	8.1	7.1	52.17	-394.9	939.9	844.1	829.5	14.58	57.874	
3,100.0	3,081.9	3,084.5	3,084.1	8.4	7.3	52.96	-395.2	938.8	834.8	819.7	15.10	55.295	
3,200.0	3,180.9	3,180.5	3,180.1	8.7	7.5	53.77	-395.7	938.1	826.0	810.4	15.58	53.004	
3,300.0	3,279.9	3,278.9	3,278.5	9.1	7.6	54.62	-396.5	937.4	817.7	801.6	16.06	50.919	
3,400.0	3,378.9	3,369.8	3,369.4	9.4	7.7	55.43	-397.4	937.0	809.9	793.4	16.49	49.125	
3,500.0	3,477.9	3,462.5	3,462.1	9.7	7.8	56.28	-399.2	937.3	803.4	786.5	16.88	47.586	
3,600.0	3,576.9	3,561.8	3,561.4	10.1	7.8	57.24	-401.7	937.6	797.5	780.2	17.28	46.139	
3,700.0	3,676.0	3,662.5	3,662.0	10.4	7.9	58.22	-404.0	937.8	791.5	773.8	17.70	44.716	
3,800.0	3,775.0	3,764.1	3,763.7	10.8	8.0	59.20	-405.9	938.1	785.6	767.4	18.13	43.337	
3,900.0	3,874.0	3,862.1	3,861.6	11.1	8.1	60.13	-407.2	938.3	779.6	761.0	18.55	42.030	
4,000.0	3,973.0	3,961.3	3,960.8	11.4	8.1	61.07	-408.6	939.0	774.1	755.1	18.97	40.811	
4,100.0	4,072.0	4,059.3	4,058.8	11.8	8.2	62.00	-409.8	939.6	768.6	749.2	19.39	39.643	
4,200.0	4,171.0	4,158.6	4,158.0	12.1	8.3	62.95	-411.1	940.4	763.6	743.8	19.82	38.530	
4,300.0	4,270.0	4,257.0	4,256.5	12.5	8.4	63.91	-412.4	941.1	758.7	738.5	20.26	37.453	
4,400.0	4,369.0	4,351.8	4,351.3	12.8	8.5	64.85	-413.9	942.0	754.4	733.7	20.70	36.437	
4,500.0	4,468.0	4,447.8	4,447.2	13.1	8.6	65.85	-416.2	942.9	750.9	729.7	21.17	35.471	
4,600.0	4,567.1	4,544.4	4,543.8	13.5	8.7	66.89	-418.9	943.6	747.8	726.2	21.65	34.539	
4,700.0	4,666.1	4,641.5	4,640.8	13.8	8.8	67.96	-421.9	944.6	745.5	723.4	22.14	33.678	
4,800.0	4,765.1	4,745.2	4,744.5	14.2	8.9	68.96	-424.0	946.9	743.2	720.6	22.61	32.874	
4,900.0	4,864.1	4,851.5	4,850.8	14.5	9.0	69.91	-424.6	949.5	740.3	717.2	23.07	32.087	
5,000.0	4,963.1	4,953.0	4,952.3	14.9	9.1	70.85	-424.7	951.4	736.8	713.2	23.53	31.310	
5,100.0	5,062.1	5,053.0	5,052.2	15.2	9.2	71.79	-425.0	953.1	733.4	709.4	24.00	30.560	
5,200.0	5,161.1	5,154.7	5,153.9	15.5	9.3	72.76	-425.0	954.5	730.0	705.6	24.48	29.825	
5,300.0	5,260.2	5,255.2	5,254.4	15.9	9.4	73.68	-425.1	955.4	726.7	701.8	24.94	29.142	
5,400.0	5,359.7	5,354.2	5,353.4	16.1	9.5	74.39	-425.5	955.8	724.5	699.2	25.32	28.608	
5,500.0	5,459.5	5,453.8	5,453.0	16.3	9.7	74.86	-425.9	956.3	723.3	697.7	25.67	28.175	
5,589.2	5,548.6	5,544.1	5,543.3	16.4	9.8	75.06	-426.2	956.9	723.1	697.1	25.95	27.866	
5,600.0	5,559.4	5,555.1	5,554.3	16.4	9.8	75.07	-426.2	957.0	723.1	697.1	25.98	27.831	
5,700.0	5,659.4	5,656.3	5,655.5	16.6	10.0	147.24	-426.3	957.4	723.3	697.1	26.28	27.528	
5,800.0	5,759.4	5,756.0	5,755.2	16.7	10.1	147.25	-426.5	957.5	723.6	697.0	26.60	27.199	
5,900.0	5,859.4	5,855.1	5,854.3	16.9	10.3	147.25	-426.9	957.7	724.0	697.0	26.93	26.879	
6,000.0	5,959.4	5,956.4	5,955.6	17.1	10.5	147.24	-427.1	958.0	724.4	697.1	27.26	26.574	
6,100.0	6,059.4	6,058.0	6,057.2	17.2	10.6	147.22	-427.1	958.3	724.5	696.9	27.57	26.274	
6,200.0	6,159.4	6,158.3	6,157.4	17.4	10.7	147.20	-427.0	958.4	724.5	696.6	27.89	25.978	
6,240.2	6,199.6	6,198.4	6,197.6	17.5	10.8	147.20	-426.9	958.5	724.5	696.4	28.01	25.860	
6,300.0	6,259.4	6,258.0	6,257.2	17.6	10.9	147.19	-426.9	958.6	724.5	696.3	28.21	25.685	
6,400.0	6,359.4	6,361.1	6,360.3	17.7	11.1	147.18	-426.7	958.7	724.4	695.9	28.54	25.382	
6,500.0	6,459.4	6,468.5	6,467.7	17.9	11.2	147.17	-425.9	958.3	723.5	694.6	28.90	25.040	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existings Sec.32-T1N-R67W - Jacobucci 33-32 (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
6,600.0	6,559.4	6,571.6	6,570.8	18.1	11.4	147.19	-424.6	957.1	721.8	692.5	29.26	24.672	
6,700.0	6,659.4	6,670.6	6,669.7	18.3	11.6	147.24	-423.3	955.6	720.0	690.4	29.62	24.309	
6,800.0	6,759.4	6,766.1	6,765.2	18.4	11.8	147.31	-422.7	954.1	718.5	688.5	29.98	23.969	
6,900.0	6,859.4	6,864.6	6,863.7	18.6	12.0	147.34	-422.2	953.3	717.6	687.3	30.35	23.649	
7,000.0	6,959.4	6,967.3	6,966.4	18.8	12.2	147.43	-421.9	951.8	716.6	685.9	30.73	23.320	
7,100.0	7,059.4	7,066.7	7,065.8	19.0	12.4	147.54	-421.5	949.9	715.3	684.2	31.11	22.992	
7,200.0	7,159.1	7,164.4	7,163.5	19.1	12.6	-32.86	-421.5	948.0	709.0	677.7	31.28	22.664	
7,300.0	7,257.2	7,261.1	7,260.1	19.2	12.8	-34.27	-421.9	946.1	692.0	661.0	31.04	22.292	
7,400.0	7,351.9	7,352.1	7,351.2	19.3	13.0	-36.83	-422.4	944.5	665.1	634.6	30.47	21.827	
7,500.0	7,441.6	7,436.8	7,435.9	19.4	13.1	-40.73	-423.1	943.8	629.6	599.9	29.71	21.192	
7,600.0	7,524.8	7,515.7	7,514.8	19.4	13.3	-46.28	-423.7	944.2	587.1	558.1	29.02	20.228	
7,700.0	7,600.1	7,589.5	7,588.5	19.5	13.4	-53.67	-424.4	945.2	539.7	510.9	28.79	18.748	
7,800.0	7,666.2	7,657.3	7,656.3	19.7	13.5	-62.78	-425.3	946.0	490.4	461.1	29.29	16.742	
7,900.0	7,721.9	7,715.6	7,714.7	19.9	13.6	-72.63	-426.3	946.3	443.4	413.0	30.37	14.598	
8,000.0	7,766.3	7,762.7	7,761.7	20.3	13.7	-81.62	-427.2	946.4	405.1	373.5	31.54	12.841	
8,100.0	7,798.7	7,797.9	7,796.8	20.8	13.7	-88.24	-428.0	946.3	383.0	350.5	32.50	11.784	
8,147.3	7,809.6	7,809.9	7,808.9	21.2	13.7	-90.19	-428.2	946.3	380.2	347.3	32.92	11.549	CC, ES
8,200.0	7,818.4	7,819.8	7,818.8	21.6	13.8	-91.40	-428.5	946.2	383.7	350.4	33.37	11.499	SF
8,300.0	7,825.2	7,828.8	7,827.8	22.4	13.8	-90.86	-428.7	946.2	409.3	374.9	34.40	11.897	
8,400.0	7,825.9	7,831.8	7,830.8	23.5	13.8	-91.30	-428.7	946.2	455.8	420.3	35.51	12.836	
8,500.0	7,826.6	7,834.7	7,833.7	24.6	13.8	-91.75	-428.8	946.2	517.7	481.0	36.72	14.098	
8,600.0	7,827.3	7,837.7	7,836.7	25.8	13.8	-92.19	-428.9	946.2	590.1	552.1	38.02	15.522	
8,700.0	7,828.0	7,840.6	7,839.6	27.1	13.8	-92.63	-428.9	946.2	669.7	630.3	39.39	17.001	
8,800.0	7,828.7	7,843.6	7,842.5	28.5	13.8	-93.08	-429.0	946.2	754.1	713.3	40.82	18.473	
8,900.0	7,829.4	7,846.5	7,845.5	30.0	13.8	-93.52	-429.1	946.1	842.0	799.7	42.31	19.901	
9,000.0	7,830.1	7,849.4	7,848.4	31.5	13.8	-93.96	-429.1	946.1	932.2	888.4	43.83	21.268	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32O Pad Sec.32-T1N-R67W - Jacobucci 32O-203 - Wellbore #1 - Plan #1 (7-25-14)

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	-64.4	64.4				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-64.4	64.4	64.2	0.22	286.659	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-64.4	64.4	63.8	0.67	95.553	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-64.4	64.4	63.3	1.12	57.332	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-64.4	64.4	62.9	1.57	40.951	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-64.4	64.4	62.4	2.02	31.851	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-64.4	64.4	62.0	2.47	26.060	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	0.0	-64.4	64.4	61.5	2.92	22.051	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-64.4	64.4	61.1	3.37	19.111	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	0.0	-64.4	64.4	60.6	3.82	16.862	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	0.0	-64.4	64.4	60.2	4.27	15.087	CC, ES
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-162.63	0.0	-64.4	66.1	61.4	4.71	14.034	
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	-163.86	0.0	-64.4	71.1	66.0	5.14	13.840	
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	-165.57	0.0	-64.4	79.5	74.0	5.56	14.291	
1,400.0	1,398.7	1,398.7	1,398.7	3.0	3.0	-167.42	0.0	-64.4	91.4	85.4	5.99	15.260	
1,500.0	1,497.7	1,497.7	1,497.7	3.3	3.3	-169.08	0.0	-64.4	105.1	98.7	6.43	16.358	
1,600.0	1,596.7	1,596.7	1,596.7	3.6	3.5	-170.36	0.0	-64.4	118.9	112.1	6.87	17.314	
1,700.0	1,695.7	1,695.7	1,695.7	3.9	3.7	-171.38	0.0	-64.4	132.8	125.5	7.31	18.153	
1,800.0	1,794.7	1,794.7	1,794.7	4.2	3.9	-172.20	0.0	-64.4	146.7	138.9	7.76	18.894	
1,900.0	1,893.8	1,893.8	1,893.8	4.5	4.1	-172.88	0.0	-64.4	160.6	152.4	8.21	19.553	
2,000.0	1,992.8	1,992.8	1,992.8	4.8	4.4	-173.45	0.0	-64.4	174.5	165.8	8.66	20.140	
2,100.0	2,091.8	2,091.8	2,091.8	5.1	4.6	-173.93	0.0	-64.4	188.5	179.3	9.12	20.668	
2,200.0	2,190.8	2,190.8	2,190.8	5.4	4.8	-174.35	0.0	-64.4	202.4	192.8	9.57	21.145	
2,300.0	2,289.8	2,290.4	2,290.4	5.7	5.0	-174.34	1.4	-64.6	216.3	206.2	10.03	21.561	
2,400.0	2,388.8	2,390.1	2,390.0	6.1	5.3	-173.47	6.3	-65.2	229.8	219.3	10.49	21.912	
2,500.0	2,487.8	2,489.5	2,489.0	6.4	5.5	-171.87	14.5	-66.2	243.2	232.3	10.95	22.210	
2,600.0	2,586.8	2,588.4	2,587.2	6.7	5.7	-169.71	26.0	-67.6	256.7	245.3	11.42	22.472	
2,700.0	2,685.8	2,686.9	2,684.9	7.1	5.9	-167.56	38.4	-69.2	270.6	258.7	11.91	22.716	
2,800.0	2,784.9	2,785.4	2,782.7	7.4	6.2	-165.63	50.8	-70.7	284.8	272.4	12.41	22.948	
2,900.0	2,883.9	2,884.0	2,880.4	7.7	6.4	-163.87	63.2	-72.2	299.3	286.4	12.92	23.167	
3,000.0	2,982.9	2,982.5	2,978.2	8.1	6.7	-162.28	75.6	-73.7	314.0	300.6	13.43	23.373	
3,100.0	3,081.9	3,081.1	3,075.9	8.4	6.9	-160.84	87.9	-75.3	329.0	315.0	13.96	23.566	
3,200.0	3,180.9	3,179.6	3,173.7	8.7	7.2	-159.51	100.3	-76.8	344.1	329.6	14.49	23.747	
3,300.0	3,279.9	3,278.2	3,271.4	9.1	7.5	-158.30	112.7	-78.3	359.4	344.4	15.03	23.917	
3,400.0	3,378.9	3,376.7	3,369.2	9.4	7.8	-157.19	125.1	-79.8	374.9	359.3	15.57	24.077	
3,500.0	3,477.9	3,475.3	3,466.9	9.7	8.0	-156.17	137.5	-81.4	390.5	374.4	16.12	24.227	
3,600.0	3,576.9	3,573.8	3,564.7	10.1	8.3	-155.22	149.9	-82.9	406.2	389.5	16.67	24.368	
3,700.0	3,676.0	3,673.4	3,663.4	10.4	8.6	-154.36	162.3	-84.4	421.9	404.7	17.22	24.509	
3,800.0	3,775.0	3,776.1	3,765.7	10.8	8.8	-153.87	172.5	-85.7	437.1	419.4	17.71	24.678	
3,900.0	3,874.0	3,879.2	3,868.6	11.1	9.0	-153.87	179.0	-86.5	451.4	433.2	18.18	24.834	
4,000.0	3,973.0	3,982.5	3,971.8	11.4	9.2	-154.32	181.9	-86.8	464.7	446.1	18.61	24.973	
4,100.0	4,072.0	4,082.7	4,072.0	11.8	9.4	-155.04	182.0	-86.8	477.5	458.4	19.03	25.087	
4,200.0	4,171.0	4,181.7	4,171.0	12.1	9.6	-155.73	182.0	-86.8	490.3	470.8	19.48	25.173	
4,300.0	4,270.0	4,280.7	4,270.0	12.5	9.8	-156.39	182.0	-86.8	503.1	483.2	19.92	25.254	
4,400.0	4,369.0	4,379.7	4,369.0	12.8	10.0	-157.01	182.0	-86.8	516.0	495.6	20.37	25.333	
4,500.0	4,468.0	4,478.7	4,468.0	13.1	10.2	-157.60	182.0	-86.8	529.0	508.2	20.82	25.412	
4,600.0	4,567.1	4,577.7	4,567.1	13.5	10.4	-158.17	182.0	-86.8	542.0	520.7	21.26	25.489	
4,700.0	4,666.1	4,676.7	4,666.1	13.8	10.6	-158.70	182.0	-86.8	555.0	533.3	21.71	25.565	
4,800.0	4,765.1	4,775.8	4,765.1	14.2	10.8	-159.22	182.0	-86.8	568.2	546.0	22.16	25.639	
4,900.0	4,864.1	4,874.8	4,864.1	14.5	11.1	-159.71	182.0	-86.8	581.3	558.7	22.61	25.712	
5,000.0	4,963.1	4,973.8	4,963.1	14.9	11.3	-160.18	182.0	-86.8	594.5	571.4	23.06	25.783	

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 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32O Pad Sec.32-T1N-R67W - Jacobucci 32O-203 - Wellbore #1 - Plan #1 (7-25-14)

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	5,062.1	5,072.8	5,062.1	15.2	11.5	-160.62	182.0	-86.8	607.7	584.2	23.51	25.852	
5,200.0	5,161.1	5,171.8	5,161.1	15.5	11.7	-161.05	182.0	-86.8	621.0	597.0	23.96	25.920	
5,300.0	5,260.2	5,270.9	5,260.2	15.9	11.9	-161.49	182.0	-86.8	633.7	609.2	24.42	25.946	
5,400.0	5,359.7	5,370.4	5,359.7	16.1	12.1	-161.84	182.0	-86.8	643.3	618.4	24.85	25.887	
5,500.0	5,459.5	5,470.2	5,459.5	16.3	12.3	-162.06	182.0	-86.8	649.6	624.3	25.25	25.726	
5,600.0	5,559.4	5,570.1	5,559.4	16.4	12.6	-162.17	182.0	-86.8	652.6	627.0	25.62	25.469	
5,700.0	5,659.4	5,670.1	5,659.4	16.6	12.8	-90.00	182.0	-86.8	652.9	626.9	26.01	25.105	
5,800.0	5,759.4	5,770.1	5,759.4	16.7	13.0	-90.00	182.0	-86.8	652.9	626.5	26.42	24.714	
5,900.0	5,859.4	5,870.1	5,859.4	16.9	13.2	-90.00	182.0	-86.8	652.9	626.1	26.83	24.334	
6,000.0	5,959.4	5,970.1	5,959.4	17.1	13.4	-90.00	182.0	-86.8	652.9	625.6	27.24	23.964	
6,100.0	6,059.4	6,070.1	6,059.4	17.2	13.6	-90.00	182.0	-86.8	652.9	625.2	27.66	23.604	
6,200.0	6,159.4	6,170.1	6,159.4	17.4	13.9	-90.00	182.0	-86.8	652.9	624.8	28.08	23.255	
6,300.0	6,259.4	6,270.1	6,259.4	17.6	14.1	-90.00	182.0	-86.8	652.9	624.4	28.49	22.914	
6,400.0	6,359.4	6,370.1	6,359.4	17.7	14.3	-90.00	182.0	-86.8	652.9	624.0	28.91	22.583	
6,500.0	6,459.4	6,470.1	6,459.4	17.9	14.5	-90.00	182.0	-86.8	652.9	623.6	29.33	22.261	
6,600.0	6,559.4	6,570.1	6,559.4	18.1	14.7	-90.00	182.0	-86.8	652.9	623.1	29.75	21.947	
6,700.0	6,659.4	6,670.1	6,659.4	18.3	14.9	-90.00	182.0	-86.8	652.9	622.7	30.17	21.641	
6,800.0	6,759.4	6,770.1	6,759.4	18.4	15.2	-90.00	182.0	-86.8	652.9	622.3	30.59	21.343	
6,900.0	6,859.4	6,870.1	6,859.4	18.6	15.4	-90.00	182.0	-86.8	652.9	621.9	31.01	21.052	
6,935.4	6,894.8	6,905.4	6,894.8	18.7	15.5	-90.03	181.7	-86.8	652.9	621.7	31.15	20.957	
7,000.0	6,959.4	6,969.7	6,958.9	18.8	15.5	-90.43	177.1	-86.8	652.9	621.5	31.36	20.817	
7,100.0	7,059.4	7,066.5	7,054.1	19.0	15.7	-91.92	160.1	-86.8	653.3	621.6	31.63	20.651	
7,200.0	7,159.1	7,159.5	7,142.8	19.1	15.7	86.07	132.6	-86.8	654.5	622.7	31.82	20.571	
7,300.0	7,257.2	7,250.0	7,225.4	19.2	15.8	84.15	95.6	-86.8	656.5	624.5	31.95	20.545	
7,400.0	7,351.9	7,338.7	7,301.5	19.3	15.9	82.33	50.2	-86.8	659.0	626.9	32.09	20.539	
7,500.0	7,441.6	7,425.4	7,370.4	19.4	16.0	80.65	-2.4	-86.8	662.0	629.7	32.26	20.521	
7,600.0	7,524.8	7,510.6	7,431.8	19.4	16.2	79.13	-61.4	-86.8	665.2	632.7	32.50	20.465	
7,700.0	7,600.1	7,594.5	7,485.4	19.5	16.4	77.78	-125.8	-86.8	668.4	635.5	32.86	20.340	
7,800.0	7,666.2	7,677.3	7,531.2	19.7	16.8	76.61	-194.8	-86.8	671.4	638.0	33.37	20.119	
7,900.0	7,721.9	7,759.2	7,568.8	19.9	17.3	75.64	-267.5	-86.8	674.1	640.1	34.07	19.790	
8,000.0	7,766.3	7,840.5	7,598.3	20.3	17.8	74.88	-343.2	-86.8	676.4	641.5	34.97	19.342	
8,100.0	7,798.7	7,921.2	7,619.4	20.8	18.5	74.33	-421.1	-86.8	678.1	642.0	36.11	18.781	
8,200.0	7,818.4	8,000.0	7,632.0	21.6	19.2	74.00	-498.8	-86.8	679.2	641.8	37.46	18.134	
8,300.0	7,825.2	8,081.8	7,636.5	22.4	20.1	73.88	-580.5	-86.8	679.6	640.5	39.07	17.396	
8,400.0	7,825.9	8,180.8	7,636.2	23.5	21.2	73.80	-679.4	-86.8	679.9	638.7	41.23	16.491	
8,500.0	7,826.6	8,280.8	7,635.8	24.6	22.5	73.71	-779.4	-86.8	680.2	636.6	43.60	15.602	
8,600.0	7,827.3	8,380.8	7,635.4	25.8	23.9	73.63	-879.4	-86.8	680.5	634.3	46.14	14.750	
8,700.0	7,828.0	8,480.7	7,635.1	27.1	25.3	73.54	-979.4	-86.8	680.8	632.0	48.82	13.945	
8,800.0	7,828.7	8,580.7	7,634.7	28.5	26.7	73.46	-1,079.4	-86.8	681.1	629.5	51.62	13.193	
8,900.0	7,829.4	8,680.7	7,634.3	30.0	28.3	73.37	-1,179.4	-86.8	681.4	626.9	54.53	12.495	
9,000.0	7,830.1	8,780.7	7,634.0	31.5	29.9	73.28	-1,279.4	-86.8	681.7	624.2	57.52	11.851	
9,100.0	7,830.8	8,880.7	7,633.6	33.0	31.5	73.20	-1,379.4	-86.8	682.0	621.4	60.59	11.256	
9,200.0	7,831.5	8,980.7	7,633.2	34.6	33.1	73.11	-1,479.4	-86.8	682.3	618.6	63.71	10.709	
9,300.0	7,832.2	9,080.7	7,632.9	36.2	34.8	73.03	-1,579.4	-86.8	682.6	615.7	66.89	10.205	
9,400.0	7,832.8	9,180.7	7,632.5	37.8	36.5	72.94	-1,679.4	-86.8	682.9	612.8	70.12	9.740	
9,500.0	7,833.5	9,280.7	7,632.1	39.5	38.2	72.86	-1,779.4	-86.8	683.2	609.9	73.38	9.311	
9,600.0	7,834.2	9,380.7	7,631.8	41.2	39.9	72.77	-1,879.4	-86.8	683.6	606.9	76.68	8.915	
9,700.0	7,834.9	9,480.7	7,631.4	42.9	41.7	72.69	-1,979.4	-86.8	683.9	603.9	80.00	8.548	
9,800.0	7,835.6	9,580.7	7,631.0	44.6	43.5	72.60	-2,079.4	-86.8	684.2	600.8	83.35	8.209	
9,900.0	7,836.3	9,680.7	7,630.7	46.3	45.2	72.52	-2,179.4	-86.8	684.5	597.8	86.72	7.893	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32O Pad Sec.32-T1N-R67W - Jacobucci 32O-203 - Wellbore #1 - Plan #1 (7-25-14)

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	7,837.0	9,780.7	7,630.3	48.1	47.0	72.43	-2,279.3	-86.8	684.8	594.7	90.11	7.600	
10,100.0	7,837.7	9,880.7	7,629.9	49.8	48.8	72.35	-2,379.3	-86.8	685.2	591.6	93.51	7.327	
10,200.0	7,838.4	9,980.7	7,629.6	51.6	50.6	72.26	-2,479.3	-86.8	685.5	588.5	96.93	7.072	
10,300.0	7,839.1	10,080.7	7,629.2	53.4	52.5	72.18	-2,579.3	-86.8	685.8	585.4	100.37	6.833	
10,400.0	7,839.8	10,180.6	7,628.8	55.2	54.3	72.09	-2,679.3	-86.8	686.1	582.3	103.81	6.610	
10,500.0	7,840.5	10,280.6	7,628.5	57.0	56.1	72.01	-2,779.3	-86.8	686.5	579.2	107.26	6.400	
10,600.0	7,841.2	10,380.6	7,628.1	58.8	57.9	71.92	-2,879.3	-86.8	686.8	576.1	110.72	6.203	
10,700.0	7,841.9	10,480.6	7,627.7	60.6	59.8	71.84	-2,979.3	-86.8	687.1	572.9	114.19	6.017	
10,800.0	7,842.6	10,580.6	7,627.4	62.4	61.6	71.75	-3,079.3	-86.8	687.4	569.8	117.66	5.842	
10,900.0	7,843.3	10,680.6	7,627.0	64.2	63.5	71.67	-3,179.3	-86.8	687.8	566.6	121.14	5.677	
11,000.0	7,844.0	10,780.6	7,626.6	66.1	65.3	71.59	-3,279.3	-86.8	688.1	563.5	124.63	5.521	
11,100.0	7,844.7	10,880.6	7,626.3	67.9	67.2	71.50	-3,379.3	-86.8	688.5	560.3	128.12	5.374	
11,200.0	7,845.4	10,980.6	7,625.9	69.7	69.0	71.42	-3,479.3	-86.8	688.8	557.2	131.61	5.234	
11,300.0	7,846.1	11,080.6	7,625.5	71.6	70.9	71.33	-3,579.3	-86.8	689.1	554.0	135.10	5.101	
11,400.0	7,846.8	11,180.6	7,625.2	73.4	72.8	71.25	-3,679.3	-86.8	689.5	550.9	138.60	4.975	
11,500.0	7,847.5	11,280.6	7,624.8	75.3	74.6	71.17	-3,779.2	-86.8	689.8	547.7	142.10	4.854	
11,600.0	7,848.2	11,380.6	7,624.4	77.1	76.5	71.08	-3,879.2	-86.8	690.2	544.6	145.60	4.740	
11,700.0	7,848.9	11,480.6	7,624.1	79.0	78.4	71.00	-3,979.2	-86.8	690.5	541.4	149.10	4.631	
11,800.0	7,849.6	11,580.6	7,623.7	80.9	80.2	70.92	-4,079.2	-86.8	690.9	538.2	152.61	4.527	
11,900.0	7,850.3	11,680.6	7,623.3	82.7	82.1	70.83	-4,179.2	-86.8	691.2	535.1	156.11	4.428	
12,000.0	7,851.0	11,780.6	7,623.0	84.6	84.0	70.75	-4,279.2	-86.8	691.6	531.9	159.62	4.333	
12,100.0	7,851.7	11,880.6	7,622.6	86.4	85.9	70.67	-4,379.2	-86.8	691.9	528.8	163.12	4.242	
12,200.0	7,852.4	11,980.5	7,622.2	88.3	87.7	70.58	-4,479.2	-86.8	692.3	525.6	166.62	4.155	
12,300.0	7,853.1	12,080.5	7,621.9	90.2	89.6	70.50	-4,579.2	-86.8	692.6	522.5	170.13	4.071	
12,400.0	7,853.8	12,180.5	7,621.5	92.1	91.5	70.42	-4,679.2	-86.8	693.0	519.3	173.63	3.991	
12,500.0	7,854.5	12,280.5	7,621.1	93.9	93.4	70.33	-4,779.2	-86.8	693.3	516.2	177.13	3.914	
12,600.0	7,855.2	12,380.5	7,620.8	95.8	95.3	70.25	-4,879.2	-86.8	693.7	513.1	180.63	3.840	
12,700.0	7,855.9	12,480.5	7,620.4	97.7	97.2	70.17	-4,979.2	-86.8	694.0	509.9	184.13	3.769	
12,800.0	7,856.6	12,580.5	7,620.0	99.6	99.1	70.09	-5,079.2	-86.8	694.4	506.8	187.63	3.701	
12,900.0	7,857.3	12,680.5	7,619.7	101.4	100.9	70.00	-5,179.2	-86.8	694.8	503.6	191.13	3.635	
13,000.0	7,858.0	12,780.5	7,619.3	103.3	102.8	69.92	-5,279.2	-86.8	695.1	500.5	194.63	3.572	
13,100.0	7,858.7	12,880.5	7,618.9	105.2	104.7	69.84	-5,379.1	-86.8	695.5	497.4	198.12	3.510	
13,200.0	7,859.4	12,980.5	7,618.6	107.1	106.6	69.76	-5,479.1	-86.8	695.9	494.3	201.61	3.451	
13,300.0	7,860.1	13,080.5	7,618.2	109.0	108.5	69.67	-5,579.1	-86.8	696.2	491.1	205.11	3.395	
13,400.0	7,860.8	13,180.5	7,617.8	110.9	110.4	69.59	-5,679.1	-86.8	696.6	488.0	208.60	3.340	
13,500.0	7,861.5	13,280.5	7,617.5	112.7	112.3	69.51	-5,779.1	-86.8	697.0	484.9	212.08	3.286	
13,600.0	7,862.2	13,380.5	7,617.1	114.6	114.2	69.43	-5,879.1	-86.8	697.4	481.8	215.57	3.235	
13,700.0	7,862.9	13,480.5	7,616.7	116.5	116.1	69.35	-5,979.1	-86.8	697.7	478.7	219.05	3.185	
13,800.0	7,863.6	13,580.5	7,616.4	118.4	118.0	69.26	-6,079.1	-86.8	698.1	475.6	222.53	3.137	
13,900.0	7,864.3	13,680.5	7,616.0	120.3	119.9	69.18	-6,179.1	-86.8	698.5	472.5	226.01	3.090	
14,000.0	7,865.0	13,780.4	7,615.6	122.2	121.8	69.10	-6,279.1	-86.8	698.9	469.4	229.49	3.045	
14,100.0	7,865.7	13,880.4	7,615.3	124.1	123.7	69.02	-6,379.1	-86.8	699.2	466.3	232.96	3.002	
14,200.0	7,866.4	13,980.4	7,614.9	126.0	125.6	68.94	-6,479.1	-86.8	699.6	463.2	236.43	2.959	
14,300.0	7,867.1	14,080.4	7,614.5	127.9	127.5	68.86	-6,579.1	-86.8	700.0	460.1	239.90	2.918	
14,400.0	7,867.8	14,180.4	7,614.2	129.8	129.4	68.78	-6,679.1	-86.8	700.4	457.0	243.37	2.878	
14,500.0	7,868.5	14,280.4	7,613.8	131.6	131.3	68.69	-6,779.1	-86.8	700.8	454.0	246.83	2.839	
14,600.0	7,869.2	14,380.4	7,613.4	133.5	133.2	68.61	-6,879.1	-86.8	701.2	450.9	250.29	2.801	
14,700.0	7,869.8	14,480.4	7,613.1	135.4	135.1	68.53	-6,979.0	-86.8	701.6	447.8	253.75	2.765	
14,721.6	7,870.0	14,502.0	7,613.0	135.8	135.5	68.51	-7,000.6	-86.8	701.6	447.1	254.49	2.757	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32O Pad Sec.32-T1N-R67W - Jacobucci 32O-303 - Wellbore #1 - Plan #1 (7-25-14)

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	-90.03	0.0	-33.6	33.6				
100.0	100.0	100.0	100.0	0.1	0.1	-90.03	0.0	-33.6	33.6	33.4	0.22	149.561	
200.0	200.0	200.0	200.0	0.3	0.3	-90.03	0.0	-33.6	33.6	32.9	0.67	49.854	
300.0	300.0	300.0	300.0	0.6	0.6	-90.03	0.0	-33.6	33.6	32.5	1.12	29.912	
400.0	400.0	400.0	400.0	0.8	0.8	-90.03	0.0	-33.6	33.6	32.0	1.57	21.366	
500.0	500.0	500.0	500.0	1.0	1.0	-90.03	0.0	-33.6	33.6	31.6	2.02	16.618	
600.0	600.0	600.0	600.0	1.2	1.2	-90.03	0.0	-33.6	33.6	31.1	2.47	13.596	
700.0	700.0	700.0	700.0	1.5	1.5	-90.03	0.0	-33.6	33.6	30.7	2.92	11.505	
800.0	800.0	800.0	800.0	1.7	1.7	-90.03	0.0	-33.6	33.6	30.2	3.37	9.971	
900.0	900.0	900.0	900.0	1.9	1.9	-90.03	0.0	-33.6	33.6	29.8	3.82	8.798	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.03	0.0	-33.6	33.6	29.3	4.27	7.872	CC, ES
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-163.06	0.0	-33.6	35.3	30.6	4.71	7.492	
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	-165.20	0.0	-33.6	40.3	35.2	5.14	7.847	
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	-167.78	0.0	-33.6	48.8	43.2	5.56	8.770	
1,400.0	1,398.7	1,398.7	1,398.7	3.0	3.0	-170.17	0.0	-33.6	60.8	54.8	5.99	10.149	
1,500.0	1,497.7	1,497.7	1,497.7	3.3	3.3	-172.01	0.0	-33.6	74.6	68.2	6.42	11.615	
1,600.0	1,596.7	1,596.7	1,596.7	3.6	3.5	-173.27	0.0	-33.6	88.5	81.7	6.87	12.893	
1,700.0	1,695.7	1,699.0	1,698.9	3.9	3.7	-173.83	1.0	-32.2	101.0	93.7	7.31	13.810	
1,800.0	1,794.7	1,802.0	1,801.8	4.2	3.9	-173.52	4.1	-27.8	110.1	102.4	7.75	14.204	
1,900.0	1,893.8	1,905.5	1,905.0	4.5	4.2	-172.50	9.4	-20.3	116.0	107.8	8.20	14.143	
2,000.0	1,992.8	2,007.2	2,005.9	4.8	4.4	-170.94	16.4	-10.4	119.2	110.5	8.66	13.764	
2,100.0	2,091.8	2,107.1	2,105.1	5.1	4.6	-169.41	23.4	-0.4	122.1	113.0	9.12	13.386	
2,200.0	2,190.8	2,207.0	2,204.2	5.4	4.9	-167.95	30.5	9.7	125.1	115.5	9.59	13.043	
2,300.0	2,289.8	2,306.9	2,303.3	5.7	5.2	-166.55	37.6	19.7	128.1	118.1	10.07	12.730	
2,400.0	2,388.8	2,406.8	2,402.5	6.1	5.4	-165.23	44.7	29.7	131.3	120.7	10.55	12.442	
2,500.0	2,487.8	2,506.7	2,501.6	6.4	5.7	-163.96	51.8	39.8	134.5	123.4	11.04	12.178	
2,600.0	2,586.8	2,606.6	2,600.8	6.7	6.0	-162.76	58.9	49.8	137.7	126.2	11.54	11.934	
2,700.0	2,685.8	2,706.6	2,699.9	7.1	6.3	-161.61	66.0	59.8	141.0	129.0	12.05	11.708	
2,800.0	2,784.9	2,806.5	2,799.1	7.4	6.5	-160.51	73.0	69.9	144.4	131.9	12.56	11.498	
2,900.0	2,883.9	2,906.4	2,898.2	7.7	6.8	-159.47	80.1	79.9	147.8	134.8	13.08	11.303	
3,000.0	2,982.9	3,006.3	2,997.4	8.1	7.1	-158.47	87.2	90.0	151.3	137.7	13.60	11.122	
3,100.0	3,081.9	3,106.2	3,096.5	8.4	7.4	-157.52	94.3	100.0	154.8	140.7	14.14	10.952	
3,200.0	3,180.9	3,206.1	3,195.7	8.7	7.7	-156.60	101.4	110.0	158.4	143.7	14.67	10.794	
3,300.0	3,279.9	3,306.0	3,294.8	9.1	8.0	-155.73	108.5	120.1	162.0	146.8	15.22	10.645	
3,400.0	3,378.9	3,405.9	3,394.0	9.4	8.3	-154.90	115.6	130.1	165.6	149.8	15.76	10.506	
3,500.0	3,477.9	3,505.8	3,493.1	9.7	8.6	-154.11	122.7	140.1	169.3	152.9	16.31	10.375	
3,600.0	3,576.9	3,605.7	3,592.3	10.1	8.9	-153.34	129.7	150.2	173.0	156.1	16.87	10.252	
3,700.0	3,676.0	3,705.6	3,691.4	10.4	9.2	-152.61	136.8	160.2	176.7	159.2	17.43	10.136	
3,800.0	3,775.0	3,805.5	3,790.6	10.8	9.5	-151.91	143.9	170.3	180.4	162.4	18.00	10.026	
3,900.0	3,874.0	3,905.4	3,889.7	11.1	9.8	-151.24	151.0	180.3	184.2	165.6	18.56	9.923	
4,000.0	3,973.0	4,005.3	3,988.9	11.4	10.1	-150.60	158.1	190.3	188.0	168.9	19.14	9.825	
4,100.0	4,072.0	4,105.2	4,088.0	11.8	10.4	-149.98	165.2	200.4	191.8	172.1	19.71	9.733	
4,200.0	4,171.0	4,203.4	4,185.4	12.1	10.7	-149.45	172.0	210.0	195.9	175.6	20.27	9.663	
4,300.0	4,270.0	4,300.0	4,281.6	12.5	10.9	-149.51	177.2	217.4	201.7	181.0	20.74	9.727	
4,400.0	4,369.0	4,393.8	4,375.3	12.8	11.1	-150.20	180.4	222.0	209.8	188.7	21.14	9.924	
4,500.0	4,468.0	4,488.3	4,469.7	13.1	11.3	-151.44	181.9	224.1	220.2	198.7	21.50	10.244	
4,600.0	4,567.1	4,585.6	4,567.1	13.5	11.5	-153.03	182.0	224.2	232.6	210.7	21.84	10.651	
4,700.0	4,666.1	4,684.6	4,666.1	13.8	11.6	-154.52	182.0	224.2	245.2	223.0	22.20	11.045	
4,800.0	4,765.1	4,783.7	4,765.1	14.2	11.8	-155.86	182.0	224.2	257.9	235.4	22.57	11.426	
4,900.0	4,864.1	4,882.7	4,864.1	14.5	12.0	-157.07	182.0	224.2	270.8	247.9	22.96	11.797	
5,000.0	4,963.1	4,981.7	4,963.1	14.9	12.2	-158.17	182.0	224.2	283.8	260.5	23.35	12.155	

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 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32O Pad Sec.32-T1N-R67W - Jacobucci 32O-303 - Wellbore #1 - Plan #1 (7-25-14)

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	5,062.1	5,080.7	5,062.1	15.2	12.4	-159.18	182.0	224.2	296.9	273.1	23.75	12.502	
5,200.0	5,161.1	5,179.7	5,161.1	15.5	12.6	-160.10	182.0	224.2	310.1	285.9	24.15	12.838	
5,300.0	5,260.2	5,278.8	5,260.2	15.9	12.8	-160.95	182.0	224.2	322.7	298.1	24.56	13.136	
5,400.0	5,359.7	5,378.3	5,359.7	16.1	13.0	-161.58	182.0	224.2	332.3	307.3	24.94	13.320	
5,500.0	5,459.5	5,478.1	5,459.5	16.3	13.2	-161.98	182.0	224.2	338.6	313.3	25.31	13.378	
5,600.0	5,559.4	5,578.0	5,559.4	16.4	13.4	-162.16	182.0	224.2	341.6	315.9	25.65	13.316	
5,700.0	5,659.4	5,678.0	5,659.4	16.6	13.6	-90.00	182.0	224.2	341.8	315.8	26.02	13.137	
5,800.0	5,759.4	5,778.0	5,759.4	16.7	13.8	-90.00	182.0	224.2	341.8	315.4	26.43	12.935	
5,900.0	5,859.4	5,878.0	5,859.4	16.9	14.0	-90.00	182.0	224.2	341.8	315.0	26.84	12.739	
6,000.0	5,959.4	5,978.0	5,959.4	17.1	14.2	-90.00	182.0	224.2	341.8	314.6	27.24	12.547	
6,100.0	6,059.4	6,078.0	6,059.4	17.2	14.4	-90.00	182.0	224.2	341.8	314.2	27.66	12.361	
6,200.0	6,159.4	6,178.0	6,159.4	17.4	14.6	-90.00	182.0	224.2	341.8	313.8	28.07	12.180	
6,300.0	6,259.4	6,278.0	6,259.4	17.6	14.8	-90.00	182.0	224.2	341.8	313.4	28.48	12.003	
6,400.0	6,359.4	6,378.0	6,359.4	17.7	15.0	-90.00	182.0	224.2	341.8	313.0	28.89	11.831	
6,500.0	6,459.4	6,478.0	6,459.4	17.9	15.2	-90.00	182.0	224.2	341.8	312.5	29.31	11.664	
6,600.0	6,559.4	6,578.0	6,559.4	18.1	15.4	-90.00	182.0	224.2	341.8	312.1	29.72	11.501	
6,700.0	6,659.4	6,678.0	6,659.4	18.3	15.6	-90.00	182.0	224.2	341.8	311.7	30.14	11.342	
6,800.0	6,759.4	6,778.0	6,759.4	18.4	15.8	-90.00	182.0	224.2	341.8	311.3	30.56	11.187	
6,900.0	6,859.4	6,878.0	6,859.4	18.6	16.1	-90.00	182.0	224.2	341.8	310.9	30.98	11.035	
7,000.0	6,959.4	6,978.0	6,959.4	18.8	16.3	-90.00	182.0	224.2	341.8	310.5	31.40	10.888	
7,038.4	6,997.8	7,016.4	6,997.8	18.9	16.3	-90.04	181.7	224.2	341.8	310.3	31.55	10.836	
7,100.0	7,059.4	7,077.7	7,059.0	19.0	16.4	-90.71	177.8	224.2	341.9	310.1	31.73	10.773	
7,200.0	7,159.1	7,175.9	7,155.7	19.1	16.5	87.53	161.2	224.2	342.2	310.2	31.93	10.715	
7,300.0	7,257.2	7,272.8	7,248.3	19.2	16.6	85.82	132.9	224.2	342.8	310.7	32.07	10.689	
7,400.0	7,351.9	7,368.6	7,335.6	19.3	16.7	84.19	93.6	224.2	343.6	311.4	32.19	10.676	
7,500.0	7,441.6	7,463.3	7,416.4	19.4	16.8	82.67	44.4	224.2	344.7	312.3	32.34	10.658	
7,600.0	7,524.8	7,557.0	7,489.7	19.4	16.9	81.29	-13.9	224.2	345.9	313.3	32.57	10.619	
7,700.0	7,600.1	7,650.0	7,554.9	19.5	17.0	80.05	-80.1	224.2	347.1	314.2	32.92	10.542	
7,800.0	7,666.2	7,741.9	7,611.0	19.7	17.2	78.98	-152.9	224.2	348.3	314.8	33.45	10.412	
7,900.0	7,721.9	7,833.5	7,657.8	19.9	17.6	78.09	-231.5	224.2	349.4	315.2	34.18	10.222	
8,000.0	7,766.3	7,924.5	7,694.6	20.3	18.1	77.39	-314.7	224.2	350.3	315.2	35.13	9.971	
8,100.0	7,798.7	8,015.2	7,721.2	20.8	18.8	76.88	-401.3	224.2	351.0	314.7	36.33	9.662	
8,200.0	7,818.4	8,105.6	7,737.4	21.6	19.6	76.57	-490.2	224.2	351.5	313.7	37.76	9.307	
8,300.0	7,825.2	8,195.9	7,742.9	22.4	20.5	76.47	-580.3	224.2	351.6	312.2	39.43	8.916	
8,400.0	7,825.9	8,295.4	7,742.5	23.5	21.7	76.29	-679.8	224.2	351.9	310.3	41.59	8.461	
8,500.0	7,826.6	8,395.3	7,742.1	24.6	22.9	76.12	-779.8	224.2	352.1	308.2	43.95	8.012	
8,600.0	7,827.3	8,495.3	7,741.6	25.8	24.2	75.94	-879.8	224.2	352.4	305.9	46.49	7.580	
8,700.0	7,828.0	8,595.3	7,741.2	27.1	25.6	75.76	-979.8	224.2	352.7	303.5	49.17	7.173	
8,800.0	7,828.7	8,695.3	7,740.8	28.5	27.1	75.59	-1,079.8	224.2	353.0	301.0	51.97	6.791	
8,900.0	7,829.4	8,795.3	7,740.4	30.0	28.6	75.41	-1,179.8	224.2	353.2	298.4	54.88	6.437	
9,000.0	7,830.1	8,895.3	7,740.0	31.5	30.2	75.24	-1,279.7	224.2	353.5	295.7	57.87	6.109	
9,100.0	7,830.8	8,995.3	7,739.5	33.0	31.8	75.06	-1,379.7	224.2	353.8	292.9	60.93	5.807	
9,200.0	7,831.5	9,095.3	7,739.1	34.6	33.4	74.89	-1,479.7	224.2	354.1	290.0	64.05	5.528	
9,300.0	7,832.2	9,195.3	7,738.7	36.2	35.0	74.71	-1,579.7	224.2	354.4	287.2	67.22	5.272	
9,400.0	7,832.8	9,295.3	7,738.3	37.8	36.7	74.54	-1,679.7	224.2	354.7	284.2	70.44	5.035	
9,500.0	7,833.5	9,395.3	7,737.9	39.5	38.4	74.37	-1,779.7	224.2	355.0	281.3	73.69	4.817	
9,600.0	7,834.2	9,495.3	7,737.5	41.2	40.2	74.19	-1,879.7	224.2	355.3	278.3	76.98	4.616	
9,700.0	7,834.9	9,595.3	7,737.0	42.9	41.9	74.02	-1,979.7	224.2	355.6	275.3	80.29	4.429	
9,800.0	7,835.6	9,695.3	7,736.6	44.6	43.7	73.85	-2,079.7	224.2	355.9	272.3	83.62	4.256	
9,900.0	7,836.3	9,795.3	7,736.2	46.3	45.4	73.67	-2,179.7	224.2	356.2	269.2	86.97	4.096	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32O Pad Sec.32-T1N-R67W - Jacobucci 32O-303 - Wellbore #1 - Plan #1 (7-25-14)

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	7,837.0	9,895.3	7,735.8	48.1	47.2	73.50	-2,279.7	224.2	356.5	266.2	90.34	3.946	
10,100.0	7,837.7	9,995.2	7,735.4	49.8	49.0	73.33	-2,379.7	224.2	356.9	263.1	93.72	3.807	
10,200.0	7,838.4	10,095.2	7,734.9	51.6	50.8	73.16	-2,479.7	224.2	357.2	260.1	97.12	3.678	
10,300.0	7,839.1	10,195.2	7,734.5	53.4	52.6	72.99	-2,579.7	224.2	357.5	257.0	100.52	3.556	
10,400.0	7,839.8	10,295.2	7,734.1	55.2	54.4	72.82	-2,679.6	224.2	357.8	253.9	103.93	3.443	
10,500.0	7,840.5	10,395.2	7,733.7	57.0	56.2	72.64	-2,779.6	224.2	358.2	250.8	107.35	3.336	
10,600.0	7,841.2	10,495.2	7,733.3	58.8	58.1	72.47	-2,879.6	224.2	358.5	247.7	110.77	3.236	
10,700.0	7,841.9	10,595.2	7,732.8	60.6	59.9	72.30	-2,979.6	224.2	358.8	244.6	114.20	3.142	
10,800.0	7,842.6	10,695.2	7,732.4	62.4	61.7	72.13	-3,079.6	224.2	359.2	241.5	117.63	3.053	
10,900.0	7,843.3	10,795.2	7,732.0	64.2	63.6	71.96	-3,179.6	224.2	359.5	238.5	121.06	2.970	
11,000.0	7,844.0	10,895.2	7,731.6	66.1	65.4	71.80	-3,279.6	224.2	359.9	235.4	124.50	2.890	
11,100.0	7,844.7	10,995.2	7,731.2	67.9	67.3	71.63	-3,379.6	224.2	360.2	232.3	127.93	2.816	
11,200.0	7,845.4	11,095.2	7,730.8	69.7	69.1	71.46	-3,479.6	224.2	360.6	229.2	131.37	2.745	
11,300.0	7,846.1	11,195.2	7,730.3	71.6	71.0	71.29	-3,579.6	224.2	360.9	226.1	134.80	2.677	
11,400.0	7,846.8	11,295.2	7,729.9	73.4	72.8	71.12	-3,679.6	224.2	361.3	223.0	138.24	2.613	
11,500.0	7,847.5	11,395.2	7,729.5	75.3	74.7	70.96	-3,779.6	224.2	361.6	220.0	141.67	2.553	
11,600.0	7,848.2	11,495.2	7,729.1	77.1	76.6	70.79	-3,879.6	224.2	362.0	216.9	145.10	2.495	
11,700.0	7,848.9	11,595.1	7,728.7	79.0	78.4	70.62	-3,979.6	224.2	362.4	213.9	148.53	2.440	
11,800.0	7,849.6	11,695.1	7,728.2	80.9	80.3	70.46	-4,079.6	224.2	362.8	210.8	151.95	2.387	
11,900.0	7,850.3	11,795.1	7,727.8	82.7	82.2	70.29	-4,179.5	224.2	363.1	207.8	155.38	2.337	
12,000.0	7,851.0	11,895.1	7,727.4	84.6	84.1	70.12	-4,279.5	224.2	363.5	204.7	158.79	2.289	
12,100.0	7,851.7	11,995.1	7,727.0	86.4	85.9	69.96	-4,379.5	224.2	363.9	201.7	162.21	2.243	
12,200.0	7,852.4	12,095.1	7,726.6	88.3	87.8	69.79	-4,479.5	224.2	364.3	198.7	165.62	2.199	
12,300.0	7,853.1	12,195.1	7,726.1	90.2	89.7	69.63	-4,579.5	224.2	364.7	195.6	169.03	2.157	
12,400.0	7,853.8	12,295.1	7,725.7	92.1	91.6	69.46	-4,679.5	224.2	365.1	192.6	172.43	2.117	
12,500.0	7,854.5	12,395.1	7,725.3	93.9	93.5	69.30	-4,779.5	224.2	365.4	189.6	175.83	2.078	
12,600.0	7,855.2	12,495.1	7,724.9	95.8	95.3	69.14	-4,879.5	224.2	365.8	186.6	179.22	2.041	
12,700.0	7,855.9	12,595.1	7,724.5	97.7	97.2	68.97	-4,979.5	224.2	366.2	183.6	182.61	2.006	
12,800.0	7,856.6	12,695.1	7,724.1	99.6	99.1	68.81	-5,079.5	224.2	366.6	180.7	185.99	1.971	
12,900.0	7,857.3	12,795.1	7,723.6	101.4	101.0	68.65	-5,179.5	224.2	367.0	177.7	189.37	1.938	
13,000.0	7,858.0	12,895.1	7,723.2	103.3	102.9	68.49	-5,279.5	224.2	367.5	174.7	192.74	1.906	
13,100.0	7,858.7	12,995.1	7,722.8	105.2	104.8	68.32	-5,379.5	224.2	367.9	171.8	196.11	1.876	
13,200.0	7,859.4	13,095.1	7,722.4	107.1	106.7	68.16	-5,479.5	224.2	368.3	168.8	199.47	1.846	
13,300.0	7,860.1	13,195.0	7,722.0	109.0	108.6	68.00	-5,579.4	224.2	368.7	165.9	202.82	1.818	
13,400.0	7,860.8	13,295.0	7,721.5	110.9	110.4	67.84	-5,679.4	224.2	369.1	162.9	206.17	1.790	
13,500.0	7,861.5	13,395.0	7,721.1	112.7	112.3	67.68	-5,779.4	224.2	369.5	160.0	209.52	1.764	
13,600.0	7,862.2	13,495.0	7,720.7	114.6	114.2	67.52	-5,879.4	224.2	370.0	157.1	212.85	1.738	
13,700.0	7,862.9	13,595.0	7,720.3	116.5	116.1	67.36	-5,979.4	224.2	370.4	154.2	216.18	1.713	
13,800.0	7,863.6	13,695.0	7,719.9	118.4	118.0	67.20	-6,079.4	224.2	370.8	151.3	219.51	1.689	
13,900.0	7,864.3	13,795.0	7,719.4	120.3	119.9	67.04	-6,179.4	224.2	371.3	148.4	222.82	1.666	
14,000.0	7,865.0	13,895.0	7,719.0	122.2	121.8	66.88	-6,279.4	224.2	371.7	145.6	226.13	1.644	
14,100.0	7,865.7	13,995.0	7,718.6	124.1	123.7	66.73	-6,379.4	224.2	372.1	142.7	229.44	1.622	
14,200.0	7,866.4	14,095.0	7,718.2	126.0	125.6	66.57	-6,479.4	224.2	372.6	139.8	232.73	1.601	
14,300.0	7,867.1	14,195.0	7,717.8	127.9	127.5	66.41	-6,579.4	224.2	373.0	137.0	236.02	1.580	
14,400.0	7,867.8	14,295.0	7,717.3	129.8	129.4	66.25	-6,679.4	224.2	373.5	134.2	239.31	1.561	
14,500.0	7,868.5	14,395.0	7,716.9	131.6	131.3	66.10	-6,779.4	224.2	373.9	131.3	242.58	1.541	
14,600.0	7,869.2	14,495.0	7,716.5	133.5	133.2	65.94	-6,879.4	224.2	374.4	128.5	245.85	1.523	
14,700.0	7,869.8	14,595.0	7,716.1	135.4	135.1	65.78	-6,979.3	224.2	374.8	125.7	249.11	1.505	
14,721.6	7,870.0	14,616.5	7,716.0	135.8	135.5	65.75	-7,000.9	224.2	374.9	125.1	249.82	1.501	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32O Pad Sec.32-T1N-R67W - Jacobucci 32O-443 - Wellbore #1 - Plan #1 (7-25-14)

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	-90.02	0.0	-95.2	95.2				
100.0	100.0	100.0	100.0	0.1	0.1	-90.02	0.0	-95.2	95.2	95.0	0.22	423.756	
200.0	200.0	200.0	200.0	0.3	0.3	-90.02	0.0	-95.2	95.2	94.6	0.67	141.252	
300.0	300.0	300.0	300.0	0.6	0.6	-90.02	0.0	-95.2	95.2	94.1	1.12	84.751	
400.0	400.0	400.0	400.0	0.8	0.8	-90.02	0.0	-95.2	95.2	93.7	1.57	60.537	
500.0	500.0	500.0	500.0	1.0	1.0	-90.02	0.0	-95.2	95.2	93.2	2.02	47.084	
600.0	600.0	600.0	600.0	1.2	1.2	-90.02	0.0	-95.2	95.2	92.8	2.47	38.523	
700.0	700.0	700.0	700.0	1.5	1.5	-90.02	0.0	-95.2	95.2	92.3	2.92	32.597	
800.0	800.0	800.0	800.0	1.7	1.7	-90.02	0.0	-95.2	95.2	91.9	3.37	28.250	
900.0	900.0	900.0	900.0	1.9	1.9	-90.02	0.0	-95.2	95.2	91.4	3.82	24.927	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.02	0.0	-95.2	95.2	91.0	4.27	22.303	CC, ES
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-162.50	0.0	-95.2	96.9	92.2	4.71	20.577	
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	-163.35	0.0	-95.2	101.9	96.8	5.14	19.835	
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	-164.61	0.0	-95.2	110.3	104.7	5.56	19.821	
1,400.0	1,398.7	1,398.7	1,398.7	3.0	3.0	-166.07	0.0	-95.2	122.1	116.1	5.99	20.388	
1,500.0	1,497.7	1,494.0	1,494.0	3.3	3.2	-167.08	0.7	-96.6	137.1	130.7	6.41	21.371	
1,600.0	1,596.7	1,588.4	1,588.3	3.6	3.4	-167.22	2.9	-100.7	154.8	148.0	6.84	22.628	
1,700.0	1,695.7	1,681.8	1,681.4	3.9	3.7	-166.76	6.6	-107.4	175.2	168.0	7.27	24.093	
1,800.0	1,794.7	1,775.1	1,774.0	4.2	3.9	-165.91	11.7	-116.7	198.3	190.5	7.71	25.707	
1,900.0	1,893.8	1,872.2	1,870.3	4.5	4.1	-165.07	17.4	-127.3	222.2	214.0	8.16	27.232	
2,000.0	1,992.8	1,969.2	1,966.6	4.8	4.4	-164.40	23.2	-137.8	246.1	237.5	8.61	28.588	
2,100.0	2,091.8	2,066.3	2,063.0	5.1	4.6	-163.84	29.0	-148.4	270.1	261.0	9.07	29.795	
2,200.0	2,190.8	2,163.3	2,159.3	5.4	4.9	-163.37	34.7	-158.9	294.1	284.6	9.53	30.871	
2,300.0	2,289.8	2,260.4	2,255.6	5.7	5.2	-162.98	40.5	-169.5	318.1	308.1	9.99	31.840	
2,400.0	2,388.8	2,357.4	2,351.9	6.1	5.4	-162.64	46.2	-180.0	342.2	331.7	10.46	32.713	
2,500.0	2,487.8	2,454.5	2,448.2	6.4	5.7	-162.34	52.0	-190.6	366.2	355.3	10.93	33.504	
2,600.0	2,586.8	2,551.5	2,544.5	6.7	6.0	-162.08	57.8	-201.1	390.2	378.8	11.40	34.222	
2,700.0	2,685.8	2,648.6	2,640.8	7.1	6.3	-161.85	63.5	-211.7	414.3	402.4	11.88	34.876	
2,800.0	2,784.9	2,745.6	2,737.1	7.4	6.6	-161.65	69.3	-222.2	438.4	426.0	12.36	35.475	
2,900.0	2,883.9	2,842.7	2,833.4	7.7	6.9	-161.46	75.0	-232.8	462.4	449.6	12.84	36.025	
3,000.0	2,982.9	2,939.7	2,929.7	8.1	7.1	-161.30	80.8	-243.3	486.5	473.2	13.32	36.531	
3,100.0	3,081.9	3,036.8	3,026.0	8.4	7.4	-161.15	86.5	-253.9	510.6	496.8	13.80	36.998	
3,200.0	3,180.9	3,133.8	3,122.3	8.7	7.7	-161.01	92.3	-264.4	534.6	520.3	14.28	37.431	
3,300.0	3,279.9	3,230.9	3,218.6	9.1	8.0	-160.89	98.1	-275.0	558.7	543.9	14.77	37.832	
3,400.0	3,378.9	3,327.9	3,314.9	9.4	8.3	-160.78	103.8	-285.5	582.8	567.5	15.25	38.205	
3,500.0	3,477.9	3,425.0	3,411.2	9.7	8.6	-160.67	109.6	-296.1	606.9	591.1	15.74	38.553	
3,600.0	3,576.9	3,522.0	3,507.5	10.1	8.9	-160.58	115.3	-306.6	630.9	614.7	16.23	38.879	
3,700.0	3,676.0	3,619.1	3,603.8	10.4	9.2	-160.49	121.1	-317.2	655.0	638.3	16.72	39.183	
3,800.0	3,775.0	3,716.1	3,700.1	10.8	9.5	-160.40	126.9	-327.7	679.1	661.9	17.21	39.468	
3,900.0	3,874.0	3,813.2	3,796.4	11.1	9.8	-160.32	132.6	-338.3	703.2	685.5	17.70	39.737	
4,000.0	3,973.0	3,910.2	3,892.7	11.4	10.1	-160.25	138.4	-348.8	727.3	709.1	18.19	39.989	
4,100.0	4,072.0	4,007.3	3,989.0	11.8	10.4	-160.18	144.1	-359.4	751.4	732.7	18.68	40.227	
4,200.0	4,171.0	4,104.3	4,085.3	12.1	10.7	-160.12	149.9	-369.9	775.5	756.3	19.17	40.452	
4,300.0	4,270.0	4,201.4	4,181.6	12.5	11.1	-160.06	155.6	-380.5	799.6	779.9	19.66	40.664	
4,400.0	4,369.0	4,298.4	4,278.0	12.8	11.4	-160.00	161.4	-391.0	823.6	803.5	20.16	40.865	
4,500.0	4,468.0	4,395.5	4,374.3	13.1	11.7	-159.95	167.2	-401.6	847.7	827.1	20.65	41.056	
4,600.0	4,567.1	4,502.1	4,480.1	13.5	12.0	-159.90	173.4	-413.0	871.7	850.5	21.16	41.202	
4,700.0	4,666.1	4,637.0	4,614.4	13.8	12.3	-159.98	179.1	-423.4	892.7	871.0	21.67	41.199	
4,800.0	4,765.1	4,774.0	4,751.3	14.2	12.5	-160.24	181.8	-428.3	909.5	887.3	22.16	41.034	
4,900.0	4,864.1	4,886.8	4,864.1	14.5	12.7	-160.56	182.0	-428.7	923.0	900.4	22.62	40.806	
5,000.0	4,963.1	4,985.8	4,963.1	14.9	12.9	-160.85	182.0	-428.7	936.3	913.2	23.07	40.584	

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 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32O Pad Sec.32-T1N-R67W - Jacobucci 32O-443 - Wellbore #1 - Plan #1 (7-25-14)

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	5,062.1	5,084.8	5,062.1	15.2	13.1	-161.12	182.0	-428.7	949.5	926.0	23.52	40.368	
5,200.0	5,161.1	5,183.8	5,161.1	15.5	13.3	-161.39	182.0	-428.7	962.8	938.9	23.97	40.160	
5,300.0	5,260.2	5,282.9	5,260.2	15.9	13.4	-161.69	182.0	-428.7	975.5	951.0	24.45	39.891	
5,400.0	5,359.7	5,382.4	5,359.7	16.1	13.6	-161.94	182.0	-428.7	985.1	960.2	24.90	39.558	
5,500.0	5,459.5	5,482.2	5,459.5	16.3	13.8	-162.10	182.0	-428.7	991.5	966.1	25.32	39.155	
5,600.0	5,559.4	5,582.1	5,559.4	16.4	14.0	-162.17	182.0	-428.7	994.5	968.8	25.71	38.683	
5,700.0	5,659.4	5,682.1	5,659.4	16.6	14.2	-90.00	182.0	-428.7	994.7	968.6	26.09	38.127	
5,800.0	5,759.4	5,782.1	5,759.4	16.7	14.4	-90.00	182.0	-428.7	994.7	968.2	26.49	37.546	
5,900.0	5,859.4	5,882.1	5,859.4	16.9	14.6	-90.00	182.0	-428.7	994.7	967.8	26.90	36.981	
6,000.0	5,959.4	5,982.1	5,959.4	17.1	14.8	-90.00	182.0	-428.7	994.7	967.4	27.30	36.430	
6,100.0	6,059.4	6,082.1	6,059.4	17.2	15.0	-90.00	182.0	-428.7	994.7	967.0	27.71	35.895	
6,200.0	6,159.4	6,182.1	6,159.4	17.4	15.2	-90.00	182.0	-428.7	994.7	966.6	28.12	35.373	
6,300.0	6,259.4	6,282.1	6,259.4	17.6	15.4	-90.00	182.0	-428.7	994.7	966.2	28.53	34.864	
6,400.0	6,359.4	6,382.1	6,359.4	17.7	15.6	-90.00	182.0	-428.7	994.7	965.8	28.94	34.369	
6,500.0	6,459.4	6,482.1	6,459.4	17.9	15.8	-90.00	182.0	-428.7	994.7	965.4	29.36	33.886	
6,600.0	6,559.4	6,582.1	6,559.4	18.1	16.0	-90.00	182.0	-428.7	994.7	965.0	29.77	33.415	
6,700.0	6,659.4	6,682.1	6,659.4	18.3	16.2	-90.00	182.0	-428.7	994.7	964.6	30.18	32.957	
6,800.0	6,759.4	6,782.1	6,759.4	18.4	16.4	-90.00	182.0	-428.7	994.7	964.1	30.60	32.509	
6,900.0	6,859.4	6,882.1	6,859.4	18.6	16.6	-90.00	182.0	-428.7	994.7	963.7	31.01	32.073	
7,000.0	6,959.4	6,982.1	6,959.4	18.8	16.8	-90.00	182.0	-428.7	994.7	963.3	31.43	31.647	
7,100.0	7,059.4	7,082.1	7,059.4	19.0	17.0	-90.00	182.0	-428.7	994.7	962.9	31.85	31.231	
7,200.0	7,159.1	7,182.2	7,159.4	19.1	17.1	90.18	178.8	-428.7	994.7	962.5	32.19	30.898	
7,300.0	7,257.2	7,282.8	7,258.7	19.2	17.3	90.39	163.0	-428.7	994.8	962.3	32.43	30.674	
7,400.0	7,351.9	7,383.9	7,355.5	19.3	17.3	90.59	134.1	-428.7	994.8	962.2	32.61	30.510	
7,500.0	7,441.6	7,485.4	7,448.0	19.4	17.4	90.78	92.6	-428.7	994.8	962.1	32.77	30.359	
7,600.0	7,524.8	7,587.4	7,534.6	19.4	17.5	90.96	38.8	-428.7	994.9	961.9	32.98	30.162	
7,700.0	7,600.1	7,689.8	7,613.6	19.5	17.6	91.13	-26.2	-428.7	994.9	961.6	33.33	29.855	
7,800.0	7,666.2	7,792.5	7,683.4	19.7	17.7	91.27	-101.6	-428.7	995.0	961.1	33.87	29.377	
7,900.0	7,721.9	7,895.6	7,742.6	19.9	18.0	91.39	-185.9	-428.7	995.0	960.3	34.68	28.690	
8,000.0	7,766.3	7,999.0	7,790.1	20.3	18.4	91.49	-277.6	-428.7	995.1	959.3	35.81	27.787	
8,100.0	7,798.7	8,102.6	7,824.8	20.8	19.1	91.56	-375.1	-428.7	995.1	957.8	37.28	26.695	
8,200.0	7,818.4	8,206.4	7,846.0	21.6	19.9	91.61	-476.6	-428.7	995.1	956.1	39.06	25.475	
8,300.0	7,825.2	8,310.2	7,853.3	22.4	21.0	91.62	-580.1	-428.7	995.1	954.0	41.12	24.199	
8,400.0	7,825.9	8,410.2	7,853.6	23.5	22.1	91.59	-680.1	-428.7	995.1	951.7	43.38	22.940	
8,500.0	7,826.6	8,510.2	7,853.8	24.6	23.3	91.57	-780.1	-428.7	995.1	949.3	45.84	21.709	
8,600.0	7,827.3	8,610.2	7,854.0	25.8	24.6	91.54	-880.1	-428.7	995.1	946.6	48.48	20.527	
8,700.0	7,828.0	8,710.2	7,854.3	27.1	26.0	91.52	-980.1	-428.7	995.1	943.8	51.27	19.410	
8,800.0	7,828.7	8,810.2	7,854.5	28.5	27.4	91.49	-1,080.1	-428.7	995.1	940.9	54.18	18.365	
8,900.0	7,829.4	8,910.2	7,854.8	30.0	28.9	91.46	-1,180.1	-428.7	995.1	937.9	57.21	17.394	
9,000.0	7,830.1	9,010.2	7,855.0	31.5	30.5	91.44	-1,280.1	-428.7	995.0	934.7	60.32	16.496	
9,100.0	7,830.8	9,110.2	7,855.3	33.0	32.1	91.41	-1,380.1	-428.7	995.0	931.5	63.52	15.666	
9,200.0	7,831.5	9,210.2	7,855.5	34.6	33.7	91.39	-1,480.1	-428.7	995.0	928.2	66.78	14.901	
9,300.0	7,832.2	9,310.2	7,855.8	36.2	35.3	91.36	-1,580.1	-428.7	995.0	924.9	70.09	14.195	
9,400.0	7,832.8	9,410.2	7,856.0	37.8	37.0	91.33	-1,680.1	-428.7	995.0	921.5	73.46	13.544	
9,500.0	7,833.5	9,510.2	7,856.2	39.5	38.7	91.31	-1,780.1	-428.7	995.0	918.1	76.87	12.943	
9,600.0	7,834.2	9,610.2	7,856.5	41.2	40.4	91.28	-1,880.1	-428.7	995.0	914.7	80.32	12.387	
9,700.0	7,834.9	9,710.2	7,856.7	42.9	42.1	91.25	-1,980.1	-428.7	995.0	911.2	83.81	11.872	
9,800.0	7,835.6	9,810.2	7,857.0	44.6	43.9	91.23	-2,080.1	-428.7	995.0	907.6	87.32	11.395	
9,900.0	7,836.3	9,910.2	7,857.2	46.3	45.6	91.20	-2,180.1	-428.7	995.0	904.1	90.86	10.951	
10,000.0	7,837.0	10,010.2	7,857.5	48.1	47.4	91.18	-2,280.1	-428.7	994.9	900.5	94.42	10.538	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32O Pad Sec.32-T1N-R67W - Jacobucci 32O-443 - Wellbore #1 - Plan #1 (7-25-14)

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	7,837.7	10,110.2	7,857.7	49.8	49.2	91.15	-2,380.1	-428.7	994.9	896.9	98.00	10.153	
10,200.0	7,838.4	10,210.1	7,858.0	51.6	51.0	91.12	-2,480.0	-428.7	994.9	893.3	101.60	9.793	
10,300.0	7,839.1	10,310.1	7,858.2	53.4	52.8	91.10	-2,580.0	-428.7	994.9	889.7	105.21	9.456	
10,400.0	7,839.8	10,410.1	7,858.4	55.2	54.6	91.07	-2,680.0	-428.7	994.9	886.1	108.84	9.141	
10,500.0	7,840.5	10,510.1	7,858.7	57.0	56.4	91.05	-2,780.0	-428.7	994.9	882.4	112.48	8.845	
10,600.0	7,841.2	10,610.1	7,858.9	58.8	58.2	91.02	-2,880.0	-428.7	994.9	878.8	116.14	8.566	
10,700.0	7,841.9	10,710.1	7,859.2	60.6	60.1	90.99	-2,980.0	-428.7	994.9	875.1	119.81	8.304	
10,800.0	7,842.6	10,810.1	7,859.4	62.4	61.9	90.97	-3,080.0	-428.7	994.9	871.4	123.48	8.057	
10,900.0	7,843.3	10,910.1	7,859.7	64.2	63.7	90.94	-3,180.0	-428.7	994.9	867.7	127.17	7.823	
11,000.0	7,844.0	11,010.1	7,859.9	66.1	65.6	90.92	-3,280.0	-428.7	994.9	864.0	130.86	7.602	
11,100.0	7,844.7	11,110.1	7,860.2	67.9	67.4	90.89	-3,380.0	-428.7	994.9	860.3	134.56	7.393	
11,200.0	7,845.4	11,210.1	7,860.4	69.7	69.3	90.86	-3,480.0	-428.7	994.8	856.6	138.27	7.195	
11,300.0	7,846.1	11,310.1	7,860.6	71.6	71.1	90.84	-3,580.0	-428.7	994.8	852.9	141.99	7.006	
11,400.0	7,846.8	11,410.1	7,860.9	73.4	73.0	90.81	-3,680.0	-428.7	994.8	849.1	145.71	6.828	
11,500.0	7,847.5	11,510.1	7,861.1	75.3	74.9	90.78	-3,780.0	-428.7	994.8	845.4	149.44	6.657	
11,600.0	7,848.2	11,610.1	7,861.4	77.1	76.7	90.76	-3,880.0	-428.7	994.8	841.7	153.17	6.495	
11,700.0	7,848.9	11,710.1	7,861.6	79.0	78.6	90.73	-3,980.0	-428.7	994.8	837.9	156.90	6.340	
11,800.0	7,849.6	11,810.1	7,861.9	80.9	80.4	90.71	-4,080.0	-428.7	994.8	834.2	160.65	6.193	
11,900.0	7,850.3	11,910.1	7,862.1	82.7	82.3	90.68	-4,180.0	-428.7	994.8	830.4	164.39	6.051	
12,000.0	7,851.0	12,010.1	7,862.3	84.6	84.2	90.65	-4,280.0	-428.7	994.8	826.7	168.14	5.916	
12,100.0	7,851.7	12,110.1	7,862.6	86.4	86.1	90.63	-4,380.0	-428.7	994.8	822.9	171.89	5.787	
12,200.0	7,852.4	12,210.1	7,862.8	88.3	87.9	90.60	-4,480.0	-428.7	994.8	819.1	175.65	5.664	
12,300.0	7,853.1	12,310.1	7,863.1	90.2	89.8	90.58	-4,580.0	-428.7	994.8	815.4	179.41	5.545	
12,400.0	7,853.8	12,410.1	7,863.3	92.1	91.7	90.55	-4,680.0	-428.7	994.8	811.6	183.17	5.431	
12,500.0	7,854.5	12,510.1	7,863.6	93.9	93.6	90.52	-4,780.0	-428.7	994.8	807.8	186.94	5.321	
12,600.0	7,855.2	12,610.1	7,863.8	95.8	95.5	90.50	-4,880.0	-428.7	994.8	804.1	190.70	5.216	
12,700.0	7,855.9	12,710.1	7,864.1	97.7	97.3	90.47	-4,980.0	-428.7	994.8	800.3	194.47	5.115	
12,800.0	7,856.6	12,810.1	7,864.3	99.6	99.2	90.44	-5,080.0	-428.7	994.8	796.5	198.25	5.018	
12,900.0	7,857.3	12,910.1	7,864.5	101.4	101.1	90.42	-5,180.0	-428.7	994.8	792.7	202.02	4.924	
13,000.0	7,858.0	13,010.1	7,864.8	103.3	103.0	90.39	-5,280.0	-428.7	994.8	789.0	205.80	4.834	
13,100.0	7,858.7	13,110.1	7,865.0	105.2	104.9	90.37	-5,380.0	-428.7	994.8	785.2	209.57	4.747	
13,200.0	7,859.4	13,210.1	7,865.3	107.1	106.8	90.34	-5,480.0	-428.7	994.8	781.4	213.36	4.662	
13,300.0	7,860.1	13,310.1	7,865.5	109.0	108.7	90.31	-5,580.0	-428.7	994.7	777.6	217.14	4.581	
13,400.0	7,860.8	13,410.1	7,865.8	110.9	110.5	90.29	-5,680.0	-428.7	994.7	773.8	220.92	4.503	
13,500.0	7,861.5	13,510.1	7,866.0	112.7	112.4	90.26	-5,780.0	-428.7	994.7	770.0	224.71	4.427	
13,600.0	7,862.2	13,610.1	7,866.3	114.6	114.3	90.24	-5,880.0	-428.7	994.7	766.2	228.49	4.353	
13,700.0	7,862.9	13,710.1	7,866.5	116.5	116.2	90.21	-5,980.0	-428.7	994.7	762.5	232.28	4.282	
13,800.0	7,863.6	13,810.1	7,866.7	118.4	118.1	90.18	-6,080.0	-428.7	994.7	758.7	236.07	4.214	
13,900.0	7,864.3	13,910.1	7,867.0	120.3	120.0	90.16	-6,180.0	-428.7	994.7	754.9	239.86	4.147	
14,000.0	7,865.0	14,010.1	7,867.2	122.2	121.9	90.13	-6,280.0	-428.7	994.7	751.1	243.65	4.083	
14,100.0	7,865.7	14,110.1	7,867.5	124.1	123.8	90.10	-6,380.0	-428.7	994.7	747.3	247.45	4.020	
14,200.0	7,866.4	14,210.1	7,867.7	126.0	125.7	90.08	-6,480.0	-428.7	994.7	743.5	251.24	3.959	
14,300.0	7,867.1	14,310.1	7,868.0	127.9	127.6	90.05	-6,580.0	-428.7	994.7	739.7	255.04	3.900	
14,400.0	7,867.8	14,410.1	7,868.2	129.8	129.5	90.03	-6,680.0	-428.7	994.7	735.9	258.83	3.843	
14,500.0	7,868.5	14,510.1	7,868.5	131.6	131.4	90.00	-6,780.0	-428.7	994.7	732.1	262.63	3.788	
14,501.2	7,868.5	14,511.3	7,868.5	131.7	131.4	90.00	-6,781.2	-428.7	994.7	732.1	262.68	3.787	
14,600.0	7,869.2	14,610.1	7,868.7	133.5	133.3	89.97	-6,880.0	-428.7	994.7	728.3	266.43	3.734	
14,700.0	7,869.8	14,710.1	7,868.9	135.4	135.2	89.95	-6,980.0	-428.7	994.7	724.5	270.23	3.681	
14,721.6	7,870.0	14,731.7	7,869.0	135.8	135.6	89.94	-7,001.6	-428.7	994.7	723.7	271.05	3.670	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32S Pad Sec.32-T1N-67W - Jacobucci 32S-343 - Wellbore #1 - Plan #1 (7-25-14)

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
2,200.0	2,190.8	2,295.6	2,292.0	5.4	5.1	22.44	-26.9	1,107.5	981.8	971.9	9.88	99.411	
2,300.0	2,289.8	2,392.9	2,388.5	5.7	5.4	22.31	-18.9	1,098.2	958.7	948.4	10.35	92.649	
2,400.0	2,388.8	2,490.2	2,485.0	6.1	5.7	22.17	-10.8	1,088.8	935.7	924.8	10.82	86.449	
2,500.0	2,487.8	2,587.5	2,581.5	6.4	6.0	22.03	-2.8	1,079.5	912.6	901.3	11.30	80.745	
2,600.0	2,586.8	2,684.8	2,678.0	6.7	6.2	21.88	5.2	1,070.1	889.6	877.8	11.78	75.485	
2,700.0	2,685.8	2,782.1	2,774.5	7.1	6.5	21.73	13.2	1,060.8	866.6	854.3	12.27	70.624	
2,800.0	2,784.9	2,879.3	2,871.0	7.4	6.8	21.56	21.2	1,051.4	843.5	830.8	12.76	66.120	
2,900.0	2,883.9	2,976.6	2,967.5	7.7	7.1	21.39	29.2	1,042.1	820.5	807.3	13.25	61.938	
3,000.0	2,982.9	3,073.9	3,064.0	8.1	7.4	21.20	37.2	1,032.7	797.5	783.8	13.74	58.047	
3,100.0	3,081.9	3,171.2	3,160.5	8.4	7.7	21.01	45.2	1,023.4	774.5	760.3	14.23	54.418	
3,200.0	3,180.9	3,268.5	3,257.0	8.7	8.0	20.80	53.2	1,014.0	751.5	736.8	14.73	51.027	
3,300.0	3,279.9	3,365.8	3,353.5	9.1	8.3	20.58	61.3	1,004.6	728.5	713.3	15.22	47.853	
3,400.0	3,378.9	3,463.1	3,450.0	9.4	8.6	20.34	69.3	995.3	705.6	689.8	15.72	44.877	
3,500.0	3,477.9	3,560.3	3,546.5	9.7	8.9	20.09	77.3	985.9	682.6	666.4	16.22	42.080	
3,600.0	3,576.9	3,657.6	3,643.0	10.1	9.2	19.82	85.3	976.6	659.7	642.9	16.72	39.449	
3,700.0	3,676.0	3,754.9	3,739.5	10.4	9.5	19.54	93.3	967.2	636.7	619.5	17.22	36.968	
3,800.0	3,775.0	3,852.2	3,836.0	10.8	9.8	19.23	101.3	957.9	613.8	596.1	17.73	34.627	
3,900.0	3,874.0	3,949.5	3,932.5	11.1	10.1	18.89	109.3	948.5	590.9	572.7	18.23	32.415	
4,000.0	3,973.0	4,046.8	4,029.0	11.4	10.4	18.54	117.3	939.2	568.1	549.3	18.74	30.320	
4,100.0	4,072.0	4,144.0	4,125.5	11.8	10.7	18.15	125.3	929.8	545.2	526.0	19.24	28.335	
4,200.0	4,171.0	4,241.3	4,222.0	12.1	11.0	17.72	133.3	920.5	522.4	502.6	19.75	26.451	
4,300.0	4,270.0	4,338.6	4,318.5	12.5	11.3	17.26	141.4	911.1	499.6	479.3	20.26	24.662	
4,400.0	4,369.0	4,435.9	4,415.0	12.8	11.6	16.75	149.4	901.8	476.8	456.0	20.77	22.960	
4,500.0	4,468.0	4,533.2	4,511.5	13.1	11.9	16.20	157.4	892.4	454.1	432.8	21.28	21.340	
4,600.0	4,567.1	4,630.5	4,608.0	13.5	12.2	15.58	165.4	883.1	431.4	409.6	21.79	19.797	
4,700.0	4,666.1	4,721.4	4,698.3	13.8	12.5	15.01	172.4	874.8	409.3	387.0	22.26	18.384	
4,800.0	4,765.1	4,810.4	4,786.9	14.2	12.7	14.67	177.6	868.7	389.3	366.6	22.70	17.154	
4,900.0	4,864.1	4,900.0	4,876.4	14.5	12.8	14.59	181.1	864.7	371.6	348.5	23.12	16.074	
5,000.0	4,963.1	4,990.7	4,967.1	14.9	13.0	14.83	182.7	862.8	356.0	332.5	23.52	15.138	
5,100.0	5,062.1	5,086.7	5,063.1	15.2	13.1	15.39	182.8	862.7	342.3	318.4	23.94	14.303	
5,200.0	5,161.1	5,185.8	5,162.1	15.5	13.3	16.04	182.8	862.7	328.8	304.4	24.38	13.488	
5,300.0	5,260.2	5,284.9	5,261.2	15.9	13.5	16.67	182.8	862.7	316.0	291.1	24.85	12.714	
5,400.0	5,359.7	5,384.3	5,360.7	16.1	13.7	17.15	182.8	862.7	306.3	281.0	25.30	12.107	
5,500.0	5,459.5	5,484.1	5,460.5	16.3	13.9	17.49	182.8	862.7	300.0	274.2	25.72	11.665	
5,600.0	5,559.4	5,584.1	5,560.4	16.4	14.1	17.65	182.8	862.7	296.9	270.9	26.10	11.379	
5,661.1	5,620.5	5,645.2	5,621.5	16.5	14.2	17.69	182.8	862.7	296.4	270.0	26.33	11.257	CC
5,700.0	5,659.4	5,684.1	5,660.4	16.6	14.3	89.84	182.8	862.7	296.7	270.2	26.47	11.206	
5,800.0	5,759.4	5,784.1	5,760.4	16.7	14.5	89.84	182.8	862.7	296.7	269.8	26.87	11.040	
5,900.0	5,859.4	5,884.1	5,860.4	16.9	14.7	89.84	182.8	862.7	296.7	269.4	27.27	10.878	
6,000.0	5,959.4	5,984.1	5,960.4	17.1	14.8	89.84	182.8	862.7	296.7	269.0	27.68	10.720	
6,100.0	6,059.4	6,084.1	6,060.4	17.2	15.0	89.84	182.8	862.7	296.7	268.6	28.08	10.565	
6,200.0	6,159.4	6,184.1	6,160.4	17.4	15.2	89.84	182.8	862.7	296.7	268.2	28.48	10.415	
6,300.0	6,259.4	6,284.1	6,260.4	17.6	15.4	89.84	182.8	862.7	296.7	267.8	28.89	10.269	
6,400.0	6,359.4	6,384.1	6,360.4	17.7	15.6	89.84	182.8	862.7	296.7	267.4	29.30	10.126	
6,500.0	6,459.4	6,484.1	6,460.4	17.9	15.8	89.84	182.8	862.7	296.7	267.0	29.71	9.987	
6,600.0	6,559.4	6,584.1	6,560.4	18.1	16.0	89.84	182.8	862.7	296.7	266.6	30.12	9.851	
6,700.0	6,659.4	6,684.1	6,660.4	18.3	16.2	89.84	182.8	862.7	296.7	266.1	30.53	9.718	
6,800.0	6,759.4	6,784.1	6,760.4	18.4	16.4	89.84	182.8	862.7	296.7	265.7	30.94	9.588	
6,900.0	6,859.4	6,884.1	6,860.4	18.6	16.6	89.84	182.8	862.7	296.7	265.3	31.35	9.462	
7,000.0	6,959.4	6,984.1	6,960.4	18.8	16.8	89.86	182.7	862.7	296.7	264.9	31.76	9.340	
7,027.7	6,987.1	7,011.8	6,988.1	18.8	16.9	90.04	181.8	862.7	296.7	264.8	31.87	9.310	

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 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32S Pad Sec.32-T1N-67W - Jacobucci 32S-343 - Wellbore #1 - Plan #1 (7-25-14)

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
7,100.0	7,059.4	7,083.4	7,059.4	19.0	17.0	91.40	174.8	862.7	296.8	264.6	32.11	9.241	
7,200.0	7,159.1	7,180.5	7,154.3	19.1	17.0	-85.83	154.7	862.7	297.5	265.1	32.39	9.184	
7,300.0	7,257.2	7,275.9	7,244.3	19.2	17.1	-83.16	123.3	862.7	298.8	266.3	32.58	9.173	
7,400.0	7,351.9	7,369.7	7,328.4	19.3	17.1	-80.65	81.8	862.7	300.7	268.0	32.70	9.197	
7,500.0	7,441.6	7,462.2	7,405.7	19.4	17.1	-78.33	31.1	862.7	303.0	270.3	32.77	9.247	
7,600.0	7,524.8	7,553.5	7,475.4	19.4	17.1	-76.23	-27.7	862.7	305.6	272.7	32.84	9.306	
7,700.0	7,600.1	7,643.7	7,537.0	19.5	17.2	-74.38	-93.7	862.7	308.2	275.2	32.96	9.351	
7,800.0	7,666.2	7,733.1	7,589.8	19.7	17.2	-72.79	-165.6	862.7	310.7	277.5	33.20	9.357	
7,900.0	7,721.9	7,821.7	7,633.6	19.9	17.5	-71.48	-242.6	862.7	313.0	279.3	33.66	9.297	
8,000.0	7,766.3	7,909.7	7,668.0	20.3	17.9	-70.44	-323.5	862.7	314.9	280.5	34.41	9.151	
8,100.0	7,798.7	8,000.0	7,693.3	20.8	18.5	-69.68	-410.2	862.7	316.4	280.9	35.51	8.909	
8,200.0	7,818.4	8,084.5	7,707.7	21.6	19.2	-69.24	-493.4	862.7	317.3	280.3	36.94	8.588	
8,300.0	7,825.2	8,171.7	7,712.7	22.4	20.1	-69.07	-580.5	862.7	317.6	278.9	38.73	8.201	
8,400.0	7,825.9	8,271.7	7,713.0	23.5	21.2	-69.00	-680.5	862.7	317.8	277.0	40.80	7.788	
8,500.0	7,826.6	8,371.7	7,713.3	24.6	22.4	-68.93	-780.5	862.7	317.9	274.9	43.07	7.382	
8,600.0	7,827.3	8,471.7	7,713.6	25.8	23.7	-68.86	-880.5	862.7	318.1	272.6	45.51	6.990	
8,700.0	7,828.0	8,571.7	7,713.8	27.1	25.0	-68.79	-980.5	862.7	318.2	270.1	48.09	6.618	
8,800.0	7,828.7	8,671.7	7,714.1	28.5	26.4	-68.72	-1,080.5	862.7	318.4	267.6	50.79	6.268	
8,900.0	7,829.4	8,771.7	7,714.4	30.0	27.9	-68.65	-1,180.5	862.7	318.5	264.9	53.60	5.943	
9,000.0	7,830.1	8,871.7	7,714.7	31.5	29.5	-68.58	-1,280.5	862.7	318.7	262.2	56.49	5.641	
9,100.0	7,830.8	8,971.7	7,715.0	33.0	31.0	-68.51	-1,380.5	862.7	318.8	259.4	59.46	5.362	
9,200.0	7,831.5	9,071.7	7,715.2	34.6	32.7	-68.44	-1,480.4	862.7	319.0	256.5	62.49	5.105	
9,300.0	7,832.2	9,171.7	7,715.5	36.2	34.3	-68.37	-1,580.4	862.7	319.1	253.6	65.57	4.867	
9,400.0	7,832.8	9,271.7	7,715.8	37.8	36.0	-68.30	-1,680.4	862.7	319.3	250.6	68.70	4.648	
9,500.0	7,833.5	9,371.7	7,716.1	39.5	37.7	-68.23	-1,780.4	862.7	319.5	247.6	71.87	4.445	
9,600.0	7,834.2	9,471.7	7,716.4	41.2	39.4	-68.16	-1,880.4	862.7	319.6	244.5	75.08	4.257	
9,700.0	7,834.9	9,571.7	7,716.6	42.9	41.1	-68.09	-1,980.4	862.7	319.8	241.5	78.31	4.083	
9,800.0	7,835.6	9,671.7	7,716.9	44.6	42.9	-68.02	-2,080.4	862.7	319.9	238.4	81.57	3.922	
9,900.0	7,836.3	9,771.7	7,717.2	46.3	44.6	-67.95	-2,180.4	862.7	320.1	235.2	84.85	3.772	
10,000.0	7,837.0	9,871.7	7,717.5	48.1	46.4	-67.88	-2,280.4	862.7	320.2	232.1	88.15	3.633	
10,100.0	7,837.7	9,971.7	7,717.8	49.8	48.2	-67.81	-2,380.4	862.7	320.4	228.9	91.46	3.503	
10,200.0	7,838.4	10,071.7	7,718.0	51.6	50.0	-67.74	-2,480.4	862.7	320.6	225.8	94.79	3.382	
10,300.0	7,839.1	10,171.7	7,718.3	53.4	51.8	-67.68	-2,580.4	862.7	320.7	222.6	98.14	3.268	
10,400.0	7,839.8	10,271.7	7,718.6	55.2	53.6	-67.61	-2,680.4	862.7	320.9	219.4	101.49	3.162	
10,500.0	7,840.5	10,371.7	7,718.9	57.0	55.4	-67.54	-2,780.4	862.7	321.0	216.2	104.86	3.062	
10,600.0	7,841.2	10,471.7	7,719.1	58.8	57.2	-67.47	-2,880.4	862.7	321.2	213.0	108.23	2.968	
10,700.0	7,841.9	10,571.7	7,719.4	60.6	59.0	-67.40	-2,980.4	862.7	321.4	209.7	111.61	2.879	
10,800.0	7,842.6	10,671.7	7,719.7	62.4	60.9	-67.33	-3,080.4	862.7	321.5	206.5	115.00	2.796	
10,900.0	7,843.3	10,771.7	7,720.0	64.2	62.7	-67.26	-3,180.4	862.7	321.7	203.3	118.39	2.717	
11,000.0	7,844.0	10,871.7	7,720.3	66.1	64.6	-67.19	-3,280.4	862.7	321.8	200.0	121.79	2.642	
11,100.0	7,844.7	10,971.7	7,720.5	67.9	66.4	-67.12	-3,380.4	862.7	322.0	196.8	125.20	2.572	
11,200.0	7,845.4	11,071.7	7,720.8	69.7	68.3	-67.06	-3,480.4	862.7	322.2	193.6	128.60	2.505	
11,300.0	7,846.1	11,171.7	7,721.1	71.6	70.1	-66.99	-3,580.4	862.7	322.3	190.3	132.01	2.442	
11,400.0	7,846.8	11,271.7	7,721.4	73.4	72.0	-66.92	-3,680.4	862.7	322.5	187.1	135.43	2.381	
11,500.0	7,847.5	11,371.7	7,721.7	75.3	73.8	-66.85	-3,780.4	862.7	322.7	183.8	138.84	2.324	
11,600.0	7,848.2	11,471.7	7,721.9	77.1	75.7	-66.78	-3,880.4	862.7	322.8	180.6	142.26	2.269	
11,700.0	7,848.9	11,571.7	7,722.2	79.0	77.6	-66.71	-3,980.4	862.7	323.0	177.3	145.68	2.217	
11,800.0	7,849.6	11,671.7	7,722.5	80.9	79.4	-66.65	-4,080.4	862.7	323.2	174.1	149.10	2.167	
11,900.0	7,850.3	11,771.7	7,722.8	82.7	81.3	-66.58	-4,180.4	862.7	323.3	170.8	152.52	2.120	
12,000.0	7,851.0	11,871.7	7,723.1	84.6	83.2	-66.51	-4,280.4	862.7	323.5	167.5	155.94	2.074	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Jacobucci 1N67W32S Pad Sec.32-T1N-67W - Jacobucci 32S-343 - Wellbore #1 - Plan #1 (7-25-14)

Offset Site Error: 0.0 ft

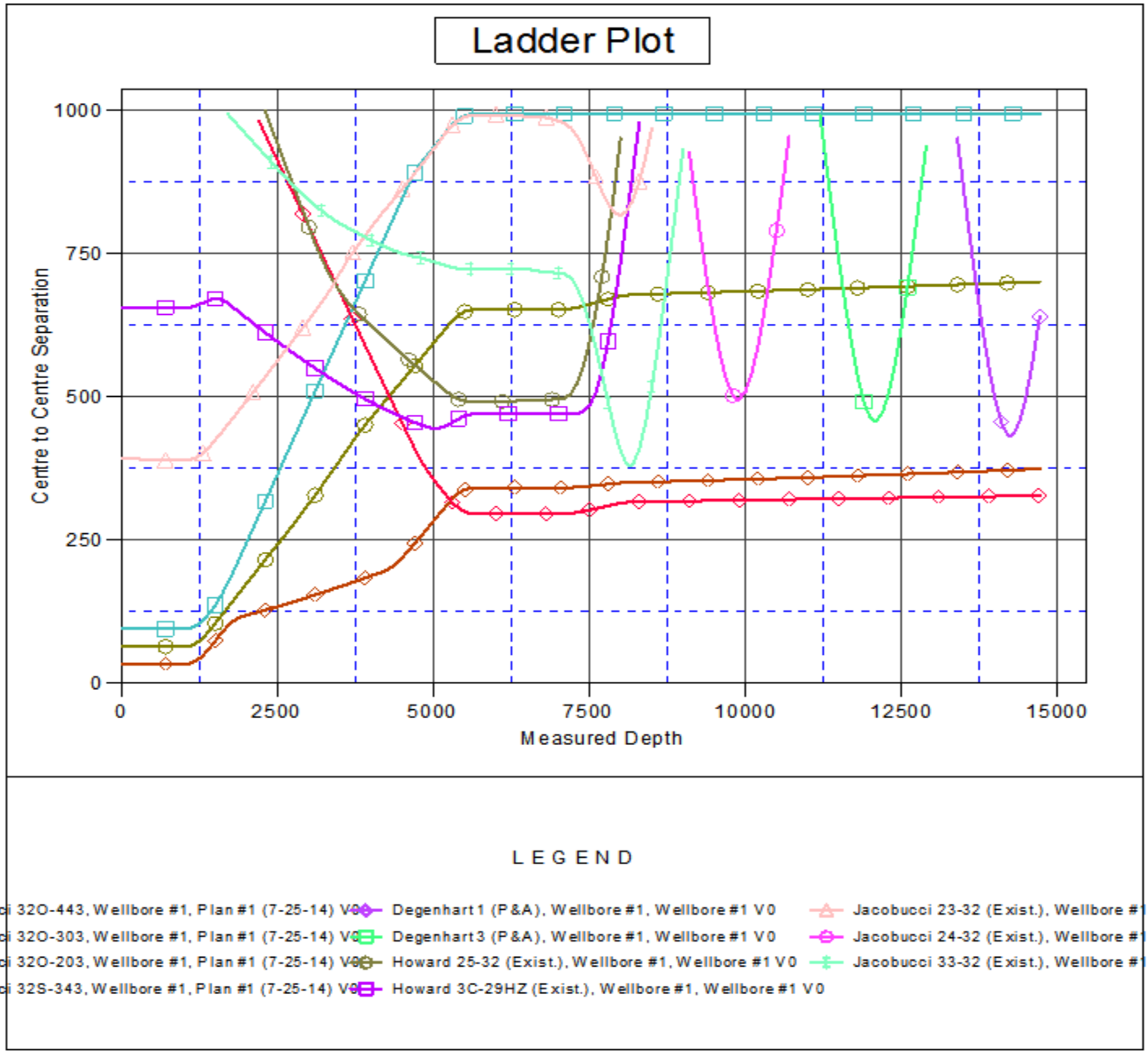
Survey Program: 0-MWD

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
12,100.0	7,851.7	11,971.7	7,723.3	86.4	85.0	-66.44	-4,380.4	862.7	323.7	164.3	159.36	2.031	
12,200.0	7,852.4	12,071.7	7,723.6	88.3	86.9	-66.37	-4,480.4	862.7	323.8	161.0	162.78	1.989	
12,300.0	7,853.1	12,171.7	7,723.9	90.2	88.8	-66.30	-4,580.4	862.7	324.0	157.8	166.20	1.949	
12,400.0	7,853.8	12,271.7	7,724.2	92.1	90.7	-66.24	-4,680.4	862.7	324.2	154.5	169.62	1.911	
12,500.0	7,854.5	12,371.7	7,724.5	93.9	92.6	-66.17	-4,780.4	862.7	324.3	151.3	173.05	1.874	
12,600.0	7,855.2	12,471.7	7,724.7	95.8	94.4	-66.10	-4,880.4	862.7	324.5	148.0	176.47	1.839	
12,700.0	7,855.9	12,571.7	7,725.0	97.7	96.3	-66.03	-4,980.4	862.7	324.7	144.8	179.88	1.805	
12,800.0	7,856.6	12,671.7	7,725.3	99.6	98.2	-65.97	-5,080.4	862.7	324.8	141.5	183.30	1.772	
12,900.0	7,857.3	12,771.7	7,725.6	101.4	100.1	-65.90	-5,180.4	862.7	325.0	138.3	186.72	1.741	
13,000.0	7,858.0	12,871.7	7,725.8	103.3	102.0	-65.83	-5,280.4	862.7	325.2	135.0	190.14	1.710	
13,100.0	7,858.7	12,971.7	7,726.1	105.2	103.9	-65.76	-5,380.4	862.7	325.3	131.8	193.55	1.681	
13,200.0	7,859.4	13,071.7	7,726.4	107.1	105.8	-65.70	-5,480.4	862.7	325.5	128.6	196.96	1.653	
13,300.0	7,860.1	13,171.7	7,726.7	109.0	107.7	-65.63	-5,580.4	862.7	325.7	125.3	200.38	1.625	
13,400.0	7,860.8	13,271.7	7,727.0	110.9	109.5	-65.56	-5,680.4	862.7	325.9	122.1	203.79	1.599	
13,500.0	7,861.5	13,371.7	7,727.2	112.7	111.4	-65.50	-5,780.4	862.7	326.0	118.8	207.19	1.574	
13,600.0	7,862.2	13,471.7	7,727.5	114.6	113.3	-65.43	-5,880.4	862.7	326.2	115.6	210.60	1.549	
13,700.0	7,862.9	13,571.7	7,727.8	116.5	115.2	-65.36	-5,980.4	862.7	326.4	112.4	214.01	1.525	
13,800.0	7,863.6	13,671.7	7,728.1	118.4	117.1	-65.30	-6,080.4	862.7	326.6	109.2	217.41	1.502	
13,900.0	7,864.3	13,771.7	7,728.4	120.3	119.0	-65.23	-6,180.4	862.7	326.7	105.9	220.81	1.480	Level 3
14,000.0	7,865.0	13,871.7	7,728.6	122.2	120.9	-65.16	-6,280.4	862.7	326.9	102.7	224.21	1.458	Level 3
14,100.0	7,865.7	13,971.7	7,728.9	124.1	122.8	-65.10	-6,380.4	862.7	327.1	99.5	227.60	1.437	Level 3
14,200.0	7,866.4	14,071.7	7,729.2	126.0	124.7	-65.03	-6,480.4	862.7	327.3	96.3	231.00	1.417	Level 3
14,300.0	7,867.1	14,171.7	7,729.5	127.9	126.6	-64.96	-6,580.4	862.7	327.4	93.1	234.39	1.397	Level 3
14,400.0	7,867.8	14,271.7	7,729.8	129.8	128.5	-64.90	-6,680.4	862.7	327.6	89.8	237.78	1.378	Level 3
14,500.0	7,868.5	14,371.7	7,730.0	131.6	130.4	-64.83	-6,780.4	862.7	327.8	86.6	241.17	1.359	Level 3
14,600.0	7,869.2	14,471.7	7,730.3	133.5	132.3	-64.76	-6,880.4	862.7	328.0	83.4	244.55	1.341	Level 3
14,700.0	7,869.8	14,571.7	7,730.6	135.4	134.2	-64.70	-6,980.4	862.7	328.2	80.2	247.94	1.324	Level 3
14,721.6	7,870.0	14,593.3	7,730.7	135.8	134.6	-64.68	-7,002.0	862.7	328.2	79.5	248.67	1.320	Level 3, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Jacobucci 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 5073.0ft (Original Well Elev) Coordinates are relative to: Jacobucci 32O-423
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 32O-423
Project:	SEC.32-T1N-R67W	**TVD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	**MD Reference:**	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Jacobucci 32O-423	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #1 (7-25-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 5073.0ft (Original Well Elev) Coordinates are relative to: Jacobucci 32O-423
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°