

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Jacobucci 320-443**

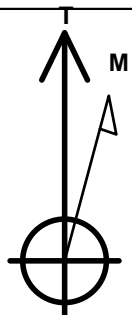
Surface Location: Jacobucci 1N67W32O Pad Sec.32-T1N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 5058.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1245913.95	3163653.49	40.006940	-104.915780	

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

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2407'FSL & 2227'FWL, Sec.32	1.0	0.0	0.0	Point
BHL 500'FSL & 1427'FWL, Sec.5	7869.0	-7001.6	-333.5	Point



Azimuths to True North
Magnetic North: 8.49°

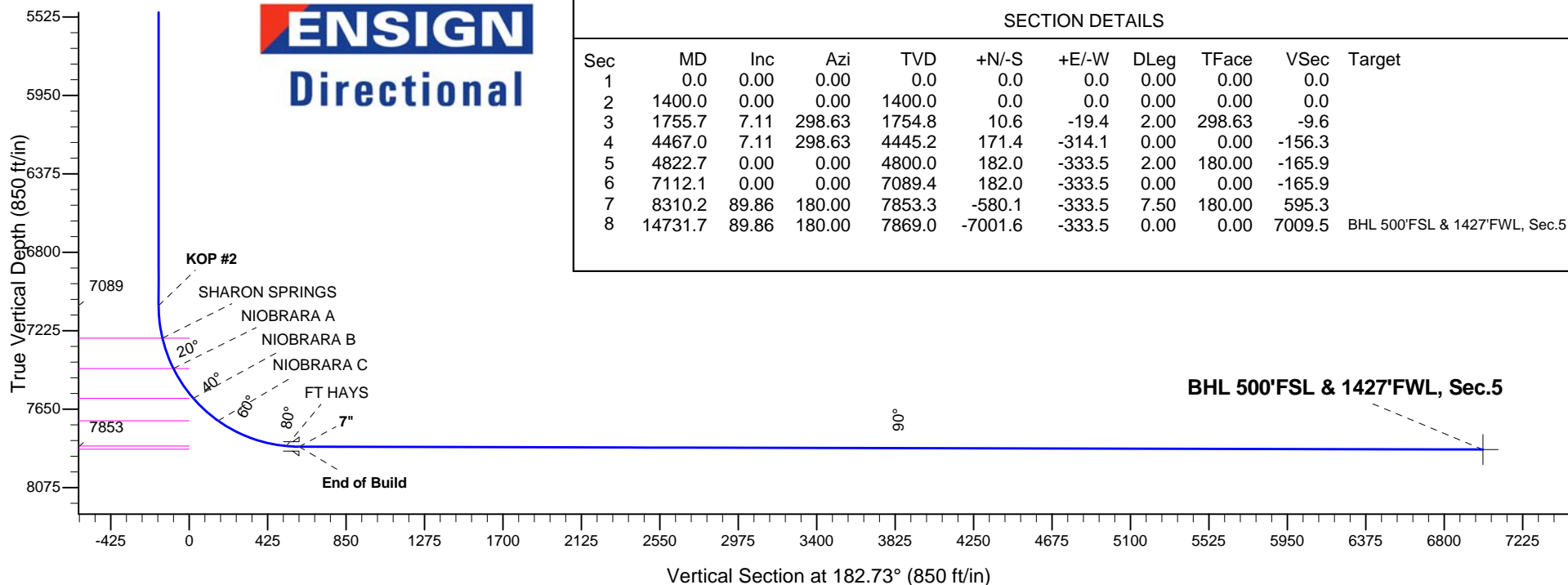
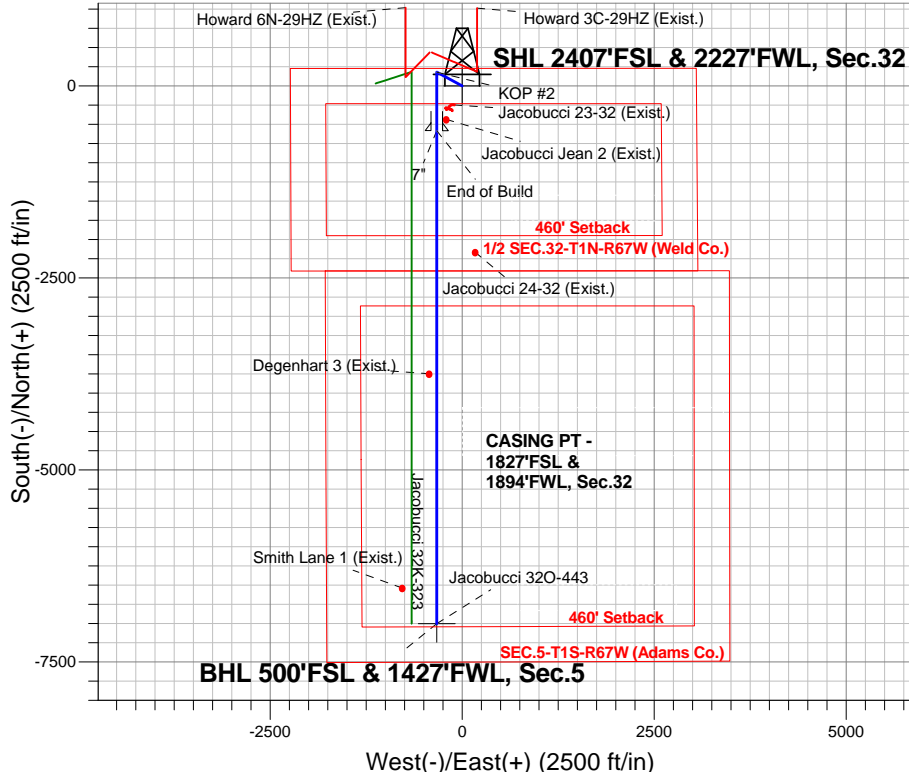
Magnetic Field
Strength: 52578.3srT
Dip Angle: 66.60°
Date: 7/28/2014
Model: IGRF2010

Jacobucci 1N67W32O Pad Sec.32-T1N-R67W
Jacobucci 320-443
Plan #1 (7-25-14)

ANNOTATIONS

TVD	MD	Annotation
1400.0	1400.0	KOP
7089.4	7112.1	KOP #2
7853.3	8310.2	End of Build

South(-)/North(+) (2500 ft/in)



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	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
3	1755.7	7.11	298.63	1754.8	10.6	-19.4	2.00	298.63	-9.6	
4	4467.0	7.11	298.63	4445.2	171.4	-314.1	0.00	0.00	-156.3	
5	4822.7	0.00	0.00	4800.0	182.0	-333.5	2.00	180.00	-165.9	
6	7112.1	0.00	0.00	7089.4	182.0	-333.5	0.00	0.00	-165.9	
7	8310.2	89.86	180.00	7853.3	-580.1	-333.5	7.50	180.00	595.3	
8	14731.7	89.86	180.00	7869.0	-7001.6	-333.5	0.00	0.00	7009.5	BHL 500'FSL & 1427'FWL, Sec.5



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T1N-R67W

Jacobucci 1N67W32O Pad Sec.32-T1N-R67W

Jacobucci 32O-443

Wellbore #1

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

Standard Planning Report

01 August, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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-443					
Well Position	+N/-S	0.0 ft	Northing:	1,245,913.95 ft	Latitude:	40.006940
	+E/-W	-95.2 ft	Easting:	3,163,653.49 ft	Longitude:	-104.915780
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	182.73

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	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,755.7	7.11	298.63	1,754.8	10.6	-19.4	2.00	2.00	0.00	298.63	
4,467.0	7.11	298.63	4,445.2	171.4	-314.1	0.00	0.00	0.00	0.00	
4,822.7	0.00	0.00	4,800.0	182.0	-333.5	2.00	-2.00	0.00	180.00	
7,112.1	0.00	0.00	7,089.4	182.0	-333.5	0.00	0.00	0.00	0.00	
8,310.2	89.86	180.00	7,853.3	-580.1	-333.5	7.50	7.50	0.00	180.00	
14,731.7	89.86	180.00	7,869.0	-7,001.6	-333.5	0.00	0.00	0.00	0.00	BHL 500'FSL & 142

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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-443	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
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP									
1,500.0	2.00	298.63	1,500.0	0.8	-1.5	-0.8	2.00	2.00	0.00
1,600.0	4.00	298.63	1,599.8	3.3	-6.1	-3.0	2.00	2.00	0.00
1,700.0	6.00	298.63	1,699.5	7.5	-13.8	-6.9	2.00	2.00	0.00
1,755.7	7.11	298.63	1,754.8	10.6	-19.4	-9.6	2.00	2.00	0.00
1,800.0	7.11	298.63	1,798.7	13.2	-24.2	-12.0	0.00	0.00	0.00
1,900.0	7.11	298.63	1,898.0	19.1	-35.0	-17.4	0.00	0.00	0.00
2,000.0	7.11	298.63	1,997.2	25.1	-45.9	-22.8	0.00	0.00	0.00
2,100.0	7.11	298.63	2,096.4	31.0	-56.8	-28.3	0.00	0.00	0.00
2,200.0	7.11	298.63	2,195.7	36.9	-67.7	-33.7	0.00	0.00	0.00
2,300.0	7.11	298.63	2,294.9	42.9	-78.5	-39.1	0.00	0.00	0.00
2,400.0	7.11	298.63	2,394.1	48.8	-89.4	-44.5	0.00	0.00	0.00
2,500.0	7.11	298.63	2,493.4	54.7	-100.3	-49.9	0.00	0.00	0.00
2,600.0	7.11	298.63	2,592.6	60.7	-111.1	-55.3	0.00	0.00	0.00
2,700.0	7.11	298.63	2,691.8	66.6	-122.0	-60.7	0.00	0.00	0.00
2,800.0	7.11	298.63	2,791.0	72.5	-132.9	-66.1	0.00	0.00	0.00
2,900.0	7.11	298.63	2,890.3	78.5	-143.8	-71.5	0.00	0.00	0.00
3,000.0	7.11	298.63	2,989.5	84.4	-154.6	-76.9	0.00	0.00	0.00
3,100.0	7.11	298.63	3,088.7	90.3	-165.5	-82.4	0.00	0.00	0.00
3,200.0	7.11	298.63	3,188.0	96.3	-176.4	-87.8	0.00	0.00	0.00
3,300.0	7.11	298.63	3,287.2	102.2	-187.2	-93.2	0.00	0.00	0.00
3,400.0	7.11	298.63	3,386.4	108.1	-198.1	-98.6	0.00	0.00	0.00
3,500.0	7.11	298.63	3,485.7	114.1	-209.0	-104.0	0.00	0.00	0.00
3,600.0	7.11	298.63	3,584.9	120.0	-219.8	-109.4	0.00	0.00	0.00
3,700.0	7.11	298.63	3,684.1	125.9	-230.7	-114.8	0.00	0.00	0.00
3,800.0	7.11	298.63	3,783.3	131.9	-241.6	-120.2	0.00	0.00	0.00
3,900.0	7.11	298.63	3,882.6	137.8	-252.5	-125.6	0.00	0.00	0.00
4,000.0	7.11	298.63	3,981.8	143.7	-263.3	-131.0	0.00	0.00	0.00
4,100.0	7.11	298.63	4,081.0	149.7	-274.2	-136.4	0.00	0.00	0.00
4,200.0	7.11	298.63	4,180.3	155.6	-285.1	-141.9	0.00	0.00	0.00
4,300.0	7.11	298.63	4,279.5	161.5	-295.9	-147.3	0.00	0.00	0.00
4,400.0	7.11	298.63	4,378.7	167.5	-306.8	-152.7	0.00	0.00	0.00
4,467.0	7.11	298.63	4,445.2	171.4	-314.1	-156.3	0.00	0.00	0.00
4,500.0	6.45	298.63	4,478.0	173.3	-317.5	-158.0	2.00	-2.00	0.00
4,522.1	6.01	298.63	4,500.0	174.5	-319.6	-159.1	2.00	-2.00	0.00
PARKMAN									
4,600.0	4.45	298.63	4,577.5	177.9	-325.9	-162.2	2.00	-2.00	0.00

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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-443	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)
4,700.0	2.45	298.63	4,677.3	180.7	-331.1	-164.8	2.00	-2.00	0.00
4,800.0	0.45	298.63	4,777.3	182.0	-333.4	-165.9	2.00	-2.00	0.00
4,822.7	0.00	0.00	4,800.0	182.0	-333.5	-165.9	2.00	-2.00	0.00
4,900.0	0.00	0.00	4,877.3	182.0	-333.5	-165.9	0.00	0.00	0.00
4,922.7	0.00	0.00	4,900.0	182.0	-333.5	-165.9	0.00	0.00	0.00
SUSSEX									
5,000.0	0.00	0.00	4,977.3	182.0	-333.5	-165.9	0.00	0.00	0.00
5,100.0	0.00	0.00	5,077.3	182.0	-333.5	-165.9	0.00	0.00	0.00
5,200.0	0.00	0.00	5,177.3	182.0	-333.5	-165.9	0.00	0.00	0.00
5,300.0	0.00	0.00	5,277.3	182.0	-333.5	-165.9	0.00	0.00	0.00
5,372.7	0.00	0.00	5,350.0	182.0	-333.5	-165.9	0.00	0.00	0.00
SHANNON									
5,400.0	0.00	0.00	5,377.3	182.0	-333.5	-165.9	0.00	0.00	0.00
5,500.0	0.00	0.00	5,477.3	182.0	-333.5	-165.9	0.00	0.00	0.00
5,600.0	0.00	0.00	5,577.3	182.0	-333.5	-165.9	0.00	0.00	0.00
5,700.0	0.00	0.00	5,677.3	182.0	-333.5	-165.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,777.3	182.0	-333.5	-165.9	0.00	0.00	0.00
5,900.0	0.00	0.00	5,877.3	182.0	-333.5	-165.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,977.3	182.0	-333.5	-165.9	0.00	0.00	0.00
6,100.0	0.00	0.00	6,077.3	182.0	-333.5	-165.9	0.00	0.00	0.00
6,200.0	0.00	0.00	6,177.3	182.0	-333.5	-165.9	0.00	0.00	0.00
6,300.0	0.00	0.00	6,277.3	182.0	-333.5	-165.9	0.00	0.00	0.00
6,400.0	0.00	0.00	6,377.3	182.0	-333.5	-165.9	0.00	0.00	0.00
6,500.0	0.00	0.00	6,477.3	182.0	-333.5	-165.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,577.3	182.0	-333.5	-165.9	0.00	0.00	0.00
6,700.0	0.00	0.00	6,677.3	182.0	-333.5	-165.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,777.3	182.0	-333.5	-165.9	0.00	0.00	0.00
6,900.0	0.00	0.00	6,877.3	182.0	-333.5	-165.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,977.3	182.0	-333.5	-165.9	0.00	0.00	0.00
7,100.0	0.00	0.00	7,077.3	182.0	-333.5	-165.9	0.00	0.00	0.00
7,112.1	0.00	0.00	7,089.4	182.0	-333.5	-165.9	0.00	0.00	0.00
KOP #2									
7,200.0	6.60	180.00	7,177.1	176.9	-333.5	-160.9	7.50	7.50	0.00
7,290.3	13.37	180.00	7,266.0	161.3	-333.5	-145.3	7.50	7.50	0.00
SHARON SPRINGS									
7,300.0	14.10	180.00	7,275.4	159.0	-333.5	-143.0	7.50	7.50	0.00
7,400.0	21.60	180.00	7,370.5	128.4	-333.5	-112.4	7.50	7.50	0.00
7,465.1	26.48	180.00	7,430.0	101.9	-333.5	-85.9	7.50	7.50	0.00
NIOBRARA A									
7,500.0	29.10	180.00	7,460.8	85.6	-333.5	-69.6	7.50	7.50	0.00
7,600.0	36.60	180.00	7,544.8	31.4	-333.5	-15.5	7.50	7.50	0.00
7,659.3	41.04	180.00	7,591.0	-5.8	-333.5	21.6	7.50	7.50	0.00
NIOBRARA B									
7,700.0	44.09	180.00	7,621.0	-33.3	-333.5	49.1	7.50	7.50	0.00
7,800.0	51.59	180.00	7,688.0	-107.4	-333.5	123.1	7.50	7.50	0.00
7,841.7	54.72	180.00	7,713.0	-140.7	-333.5	156.4	7.50	7.50	0.00
NIOBRARA C									
7,900.0	59.09	180.00	7,744.8	-189.6	-333.5	205.2	7.50	7.50	0.00
8,000.0	66.59	180.00	7,790.5	-278.5	-333.5	294.0	7.50	7.50	0.00
8,100.0	74.09	180.00	7,824.1	-372.6	-333.5	388.0	7.50	7.50	0.00
8,200.0	81.59	180.00	7,845.1	-470.3	-333.5	485.6	7.50	7.50	0.00
8,240.9	84.66	180.00	7,850.0	-510.9	-333.5	526.2	7.50	7.50	0.00

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Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	North Reference:	True
Well:	Jacobucci 32O-443	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)
FT HAYS									
8,300.0	89.09	180.00	7,853.2	-569.9	-333.5	585.1	7.50	7.50	0.00
8,310.2	89.86	180.00	7,853.3	-580.1	-333.5	595.3	7.50	7.50	0.00
End of Build - 7"									
8,400.0	89.86	180.00	7,853.5	-669.9	-333.5	685.0	0.00	0.00	0.00
8,500.0	89.86	180.00	7,853.8	-769.9	-333.5	784.9	0.00	0.00	0.00
8,600.0	89.86	180.00	7,854.0	-869.9	-333.5	884.8	0.00	0.00	0.00
8,700.0	89.86	180.00	7,854.3	-969.9	-333.5	984.6	0.00	0.00	0.00
8,800.0	89.86	180.00	7,854.5	-1,069.9	-333.5	1,084.5	0.00	0.00	0.00
8,900.0	89.86	180.00	7,854.8	-1,169.9	-333.5	1,184.4	0.00	0.00	0.00
9,000.0	89.86	180.00	7,855.0	-1,269.9	-333.5	1,284.3	0.00	0.00	0.00
9,100.0	89.86	180.00	7,855.2	-1,369.9	-333.5	1,384.2	0.00	0.00	0.00
9,200.0	89.86	180.00	7,855.5	-1,469.9	-333.5	1,484.1	0.00	0.00	0.00
9,300.0	89.86	180.00	7,855.7	-1,569.9	-333.5	1,584.0	0.00	0.00	0.00
9,400.0	89.86	180.00	7,856.0	-1,669.9	-333.5	1,683.8	0.00	0.00	0.00
9,500.0	89.86	180.00	7,856.2	-1,769.9	-333.5	1,783.7	0.00	0.00	0.00
9,600.0	89.86	180.00	7,856.5	-1,869.9	-333.5	1,883.6	0.00	0.00	0.00
9,700.0	89.86	180.00	7,856.7	-1,969.9	-333.5	1,983.5	0.00	0.00	0.00
9,800.0	89.86	180.00	7,856.9	-2,069.9	-333.5	2,083.4	0.00	0.00	0.00
9,900.0	89.86	180.00	7,857.2	-2,169.9	-333.5	2,183.3	0.00	0.00	0.00
10,000.0	89.86	180.00	7,857.4	-2,269.9	-333.5	2,283.2	0.00	0.00	0.00
10,100.0	89.86	180.00	7,857.7	-2,369.9	-333.5	2,383.1	0.00	0.00	0.00
10,200.0	89.86	180.00	7,857.9	-2,469.9	-333.5	2,482.9	0.00	0.00	0.00
10,300.0	89.86	180.00	7,858.2	-2,569.9	-333.5	2,582.8	0.00	0.00	0.00
10,400.0	89.86	180.00	7,858.4	-2,669.9	-333.5	2,682.7	0.00	0.00	0.00
10,500.0	89.86	180.00	7,858.7	-2,769.9	-333.5	2,782.6	0.00	0.00	0.00
10,600.0	89.86	180.00	7,858.9	-2,869.9	-333.5	2,882.5	0.00	0.00	0.00
10,700.0	89.86	180.00	7,859.1	-2,969.9	-333.5	2,982.4	0.00	0.00	0.00
10,800.0	89.86	180.00	7,859.4	-3,069.9	-333.5	3,082.3	0.00	0.00	0.00
10,900.0	89.86	180.00	7,859.6	-3,169.9	-333.5	3,182.1	0.00	0.00	0.00
11,000.0	89.86	180.00	7,859.9	-3,269.9	-333.5	3,282.0	0.00	0.00	0.00
11,100.0	89.86	180.00	7,860.1	-3,369.9	-333.5	3,381.9	0.00	0.00	0.00
11,200.0	89.86	180.00	7,860.4	-3,469.9	-333.5	3,481.8	0.00	0.00	0.00
11,300.0	89.86	180.00	7,860.6	-3,569.9	-333.5	3,581.7	0.00	0.00	0.00
11,400.0	89.86	180.00	7,860.9	-3,669.9	-333.5	3,681.6	0.00	0.00	0.00
11,500.0	89.86	180.00	7,861.1	-3,769.9	-333.5	3,781.5	0.00	0.00	0.00
11,600.0	89.86	180.00	7,861.3	-3,869.9	-333.5	3,881.3	0.00	0.00	0.00
11,700.0	89.86	180.00	7,861.6	-3,969.9	-333.5	3,981.2	0.00	0.00	0.00
11,800.0	89.86	180.00	7,861.8	-4,069.9	-333.5	4,081.1	0.00	0.00	0.00
11,900.0	89.86	180.00	7,862.1	-4,169.9	-333.5	4,181.0	0.00	0.00	0.00
12,000.0	89.86	180.00	7,862.3	-4,269.9	-333.5	4,280.9	0.00	0.00	0.00
12,100.0	89.86	180.00	7,862.6	-4,369.9	-333.5	4,380.8	0.00	0.00	0.00
12,200.0	89.86	180.00	7,862.8	-4,469.9	-333.5	4,480.7	0.00	0.00	0.00
12,300.0	89.86	180.00	7,863.1	-4,569.9	-333.5	4,580.6	0.00	0.00	0.00
12,400.0	89.86	180.00	7,863.3	-4,669.9	-333.5	4,680.4	0.00	0.00	0.00
12,500.0	89.86	180.00	7,863.5	-4,769.9	-333.5	4,780.3	0.00	0.00	0.00
12,600.0	89.86	180.00	7,863.8	-4,869.9	-333.5	4,880.2	0.00	0.00	0.00
12,700.0	89.86	180.00	7,864.0	-4,969.9	-333.5	4,980.1	0.00	0.00	0.00
12,800.0	89.86	180.00	7,864.3	-5,069.9	-333.5	5,080.0	0.00	0.00	0.00
12,900.0	89.86	180.00	7,864.5	-5,169.9	-333.5	5,179.9	0.00	0.00	0.00
13,000.0	89.86	180.00	7,864.8	-5,269.9	-333.5	5,279.8	0.00	0.00	0.00
13,100.0	89.86	180.00	7,865.0	-5,369.9	-333.5	5,379.6	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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	North Reference:	True
	Sec.32-T1N-R67W		
Well:	Jacobucci 32O-443	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	89.86	180.00	7,865.3	-5,469.9	-333.5	5,479.5	0.00	0.00	0.00
13,300.0	89.86	180.00	7,865.5	-5,569.9	-333.5	5,579.4	0.00	0.00	0.00
13,400.0	89.86	180.00	7,865.7	-5,669.9	-333.5	5,679.3	0.00	0.00	0.00
13,500.0	89.86	180.00	7,866.0	-5,769.9	-333.5	5,779.2	0.00	0.00	0.00
13,600.0	89.86	180.00	7,866.2	-5,869.9	-333.5	5,879.1	0.00	0.00	0.00
13,700.0	89.86	180.00	7,866.5	-5,969.9	-333.5	5,979.0	0.00	0.00	0.00
13,800.0	89.86	180.00	7,866.7	-6,069.9	-333.5	6,078.9	0.00	0.00	0.00
13,900.0	89.86	180.00	7,867.0	-6,169.9	-333.5	6,178.7	0.00	0.00	0.00
13,913.2	89.86	180.00	7,867.0	-6,183.0	-333.5	6,191.9	0.00	0.00	0.00
CODELL									
14,000.0	89.86	180.00	7,867.2	-6,269.9	-333.5	6,278.6	0.00	0.00	0.00
14,100.0	89.86	180.00	7,867.5	-6,369.9	-333.5	6,378.5	0.00	0.00	0.00
14,200.0	89.86	180.00	7,867.7	-6,469.9	-333.5	6,478.4	0.00	0.00	0.00
14,300.0	89.86	180.00	7,867.9	-6,569.9	-333.5	6,578.3	0.00	0.00	0.00
14,400.0	89.86	180.00	7,868.2	-6,669.9	-333.5	6,678.2	0.00	0.00	0.00
14,500.0	89.86	180.00	7,868.4	-6,769.9	-333.5	6,778.1	0.00	0.00	0.00
14,600.0	89.86	180.00	7,868.7	-6,869.9	-333.5	6,877.9	0.00	0.00	0.00
14,700.0	89.86	180.00	7,868.9	-6,969.9	-333.5	6,977.8	0.00	0.00	0.00
14,731.7	89.86	180.00	7,869.0	-7,001.6	-333.5	7,009.5	0.00	0.00	0.00

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
8,310.2	7,853.3	7"	7	7-1/2

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,522.1	4,500.0	PARKMAN		0.00	
4,922.7	4,900.0	SUSSEX		0.00	
5,372.7	5,350.0	SHANNON		0.00	
7,290.3	7,266.0	SHARON SPRINGS		0.00	
7,465.1	7,430.0	NIOBRARA A		0.00	
7,659.3	7,591.0	NIOBRARA B		0.00	
7,841.7	7,713.0	NIOBRARA C		0.00	
8,240.9	7,850.0	FT HAYS		0.00	
13,913.2	7,867.0	CODELL		0.00	

Database:	landmark	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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	North Reference:	True
	Sec.32-T1N-R67W		
Well:	Jacobucci 32O-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-25-14)		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,400.0	1,400.0	0.0	0.0	KOP
7,112.1	7,089.4	10.6	-19.4	KOP #2
8,310.2	7,853.3	171.4	-314.1	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T1N-R67W

Jacobucci 1N67W32O Pad Sec.32-T1N-R67W

Jacobucci 32O-443

Wellbore #1

Plan #1 (7-25-14)

Anticollision Report

01 August, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	8/1/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	14,731.7	Plan #1 (7-25-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existings Sec.32-T1N-R67W						
Degenhart 3 (Exist.) - Wellbore #1 - Wellbore #1	11,476.1	7,906.0	98.9	-133.3	0.426	Level 1, CC, ES, SF
Howard 3C-29HZ (Exist.) - Wellbore #1 - Wellbore #1	3,400.2	3,387.7	224.4	131.3	2.411	CC
Howard 3C-29HZ (Exist.) - Wellbore #1 - Wellbore #1	3,500.0	3,483.1	226.3	129.9	2.347	ES
Howard 3C-29HZ (Exist.) - Wellbore #1 - Wellbore #1	3,600.0	3,578.7	231.9	132.4	2.330	SF
Howard 6N-29HZ (Exist.) - Wellbore #1 - Wellbore #1	7,297.2	7,290.7	404.2	267.6	2.960	CC
Howard 6N-29HZ (Exist.) - Wellbore #1 - Wellbore #1	7,300.0	7,293.0	404.2	267.6	2.959	ES, SF
Jacobucci 23-32 (Exist.) - Wellbore #1 - Wellbore #1	7,968.7	7,755.2	175.1	143.3	5.521	CC, ES, SF
Jacobucci 24-32 (Exist.) - Wellbore #1 - Wellbore #1	9,894.0	7,882.2	498.7	296.0	2.460	CC
Jacobucci 24-32 (Exist.) - Wellbore #1 - Wellbore #1	9,900.0	7,882.2	498.8	295.9	2.459	ES, SF
Jacobucci Jean 2 (Exist.) - Wellbore #1 - Wellbore #1	1,400.0	1,391.0	481.7	450.9	15.612	CC
Jacobucci Jean 2 (Exist.) - Wellbore #1 - Wellbore #1	2,100.0	2,087.4	489.1	442.7	10.530	ES
Jacobucci Jean 2 (Exist.) - Wellbore #1 - Wellbore #1	5,200.0	5,107.0	630.7	515.9	5.494	SF
Smith Lane 1 (Exist.) - Wellbore #1 - Wellbore #1	14,265.4	7,951.9	451.1	165.5	1.579	CC, ES, SF
Jacobucci 1N67W32K Pad Sec.32-T1N-R67W						
Jacobucci 32K-323 - Wellbore #1 - Plan #1 (7-24-14)	7,054.0	7,055.6	327.5	296.1	10.425	CC
Jacobucci 32K-323 - Wellbore #1 - Plan #1 (7-24-14)	14,731.7	14,611.8	361.5	111.8	1.448	Level 3, ES, SF
Jacobucci 1N67W32O Pad Sec.32-T1N-R67W						
Jacobucci 32O-203 - Wellbore #1 - Plan #1 (7-25-14)	1,400.0	1,400.0	30.8	24.7	5.078	CC, ES
Jacobucci 32O-203 - Wellbore #1 - Plan #1 (7-25-14)	14,731.7	14,502.0	427.1	201.8	1.895	SF
Jacobucci 32O-303 - Wellbore #1 - Plan #1 (7-25-14)	1,400.0	1,400.0	61.6	55.6	10.155	CC, ES
Jacobucci 32O-303 - Wellbore #1 - Plan #1 (7-25-14)	14,731.7	14,616.6	670.6	405.7	2.532	SF
Jacobucci 32O-423 - Wellbore #1 - Plan #1 (7-25-14)	1,000.0	1,000.0	95.2	91.0	22.303	CC, ES
Jacobucci 32O-423 - Wellbore #1 - Plan #1 (7-25-14)	14,731.7	14,721.6	994.7	723.7	3.670	SF

Offset Design	Existings Sec.32-T1N-R67W - Degenhart 3 (Exist.) - Wellbore #1 - Wellbore #1										Offset Site Error:	0.0 ft
Survey Program:	8446-UNKNOWN										Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation (ft)	Factor
10,500.0	7,858.7	7,903.7	7,903.7	56.2	158.1	88.62	-3,745.9	-432.3	981.0	767.0	214.05	4.583
10,600.0	7,858.9	7,903.9	7,903.9	58.1	158.1	88.76	-3,745.9	-432.3	881.6	665.7	215.89	4.084

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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														Offset Site Error:	0.0 ft
Existings Sec.32-T1N-R67W - Degenhart 3 (Exist.) - Wellbore #1 - Wellbore #1														Offset Well Error:	0.0 ft
Survey Program: 8446-UNKNOWN															
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
10,700.0	7,859.1	7,904.1	7,904.1	59.9	158.1	88.90	-3,745.9	-432.3	782.3	564.6	217.74	3.593			
10,800.0	7,859.4	7,904.4	7,904.4	61.7	158.1	89.04	-3,745.9	-432.3	683.2	463.7	219.59	3.111			
10,900.0	7,859.6	7,904.6	7,904.6	63.6	158.1	89.18	-3,745.9	-432.3	584.5	363.0	221.44	2.639			
11,000.0	7,859.9	7,904.9	7,904.9	65.4	158.1	89.33	-3,745.9	-432.3	486.2	262.9	223.30	2.177			
11,100.0	7,860.1	7,905.1	7,905.1	67.2	158.1	89.47	-3,745.9	-432.3	388.8	163.7	225.16	1.727			
11,200.0	7,860.4	7,905.4	7,905.4	69.1	158.1	89.61	-3,745.9	-432.3	293.2	66.2	227.02	1.292	Level 3		
11,300.0	7,860.6	7,905.6	7,905.6	70.9	158.1	89.75	-3,745.9	-432.3	201.9	-27.0	228.88	0.882	Level 1		
11,400.0	7,860.9	7,905.9	7,905.9	72.8	158.1	89.89	-3,745.9	-432.3	124.7	-106.0	230.75	0.541	Level 1		
11,476.1	7,861.0	7,906.0	7,906.0	74.2	158.1	90.00	-3,745.9	-432.3	98.9	-133.3	232.17	0.426	Level 1, CC, ES, SF		
11,500.0	7,861.1	7,906.1	7,906.1	74.7	158.1	90.03	-3,745.9	-432.3	101.7	-130.9	232.61	0.437	Level 1		
11,600.0	7,861.3	7,906.3	7,906.3	76.5	158.1	90.18	-3,745.9	-432.3	158.5	-75.9	234.48	0.676	Level 1		
11,700.0	7,861.6	7,906.6	7,906.6	78.4	158.1	90.32	-3,745.9	-432.3	244.8	8.4	236.35	1.036	Level 2		
11,800.0	7,861.8	7,906.8	7,906.8	80.3	158.1	90.46	-3,745.9	-432.3	338.7	100.5	238.22	1.422	Level 3		
11,900.0	7,862.1	7,907.1	7,907.1	82.1	158.1	90.60	-3,745.9	-432.3	435.3	195.2	240.09	1.813			
12,000.0	7,862.3	7,907.3	7,907.3	84.0	158.1	90.74	-3,745.9	-432.3	533.2	291.2	241.96	2.204			
12,100.0	7,862.6	7,907.6	7,907.6	85.9	158.2	90.88	-3,745.9	-432.3	631.7	387.9	243.83	2.591			
12,200.0	7,862.8	7,907.8	7,907.8	87.7	158.2	91.03	-3,745.9	-432.3	730.7	485.0	245.70	2.974			
12,300.0	7,863.1	7,908.1	7,908.1	89.6	158.2	91.17	-3,745.9	-432.3	829.8	582.3	247.57	3.352			
12,400.0	7,863.3	7,908.3	7,908.3	91.5	158.2	91.31	-3,745.9	-432.3	929.2	679.8	249.44	3.725			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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														Offset Site Error:	0.0 ft
Survey Program: 100-UNKNOWN														Offset Well Error:	0.0 ft
Existings Sec.32-T1N-R67W - Howard 3C-29HZ (Exist.) - Wellbore #1 - Wellbore #1															
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-42.21	436.1	-395.5	589.2						
100.0	100.0	76.0	76.0	0.1	1.5	-42.21	436.1	-395.5	588.8	587.1	1.63	360.659			
200.0	200.0	176.0	176.0	0.3	5.0	-42.21	436.1	-395.5	588.8	583.4	5.38	109.491			
300.0	300.0	276.0	276.0	0.6	9.0	-42.21	436.1	-395.5	588.8	579.1	9.60	61.316			
400.0	400.0	376.0	376.0	0.8	13.0	-42.21	436.1	-395.5	588.8	574.9	13.83	42.581			
500.0	500.0	476.0	476.0	1.0	17.0	-42.21	436.1	-395.5	588.8	570.7	18.05	32.615			
600.0	600.0	576.0	576.0	1.2	21.0	-42.21	436.1	-395.5	588.8	566.5	22.28	26.430			
700.0	700.0	676.0	676.0	1.5	25.0	-42.21	436.1	-395.5	588.8	562.3	26.50	22.216			
800.0	800.0	776.0	776.0	1.7	29.0	-42.21	436.1	-395.5	588.8	558.0	30.73	19.162			
900.0	900.0	876.0	876.0	1.9	33.0	-42.21	436.1	-395.5	588.8	553.8	34.95	16.845			
1,000.0	1,000.0	976.0	976.0	2.1	37.0	-42.21	436.1	-395.5	588.8	549.6	39.18	15.029			
1,100.0	1,100.0	1,076.0	1,076.0	2.4	41.0	-42.21	436.1	-395.5	588.8	545.4	43.40	13.566			
1,200.0	1,200.0	1,176.0	1,176.0	2.6	45.0	-42.21	436.1	-395.5	588.8	541.1	47.62	12.362			
1,300.0	1,300.0	1,276.0	1,276.0	2.8	49.0	-42.21	436.1	-395.5	588.8	536.9	51.85	11.355			
1,400.0	1,400.0	1,393.4	1,393.4	3.0	51.2	-42.15	435.5	-394.1	587.6	533.4	54.20	10.842			
1,500.0	1,500.0	1,515.8	1,515.6	3.3	49.8	19.61	432.9	-388.1	581.1	528.1	53.03	10.957			
1,600.0	1,599.8	1,636.6	1,635.8	3.5	48.8	20.43	428.3	-377.4	567.5	515.4	52.11	10.890			
1,700.0	1,699.5	1,754.7	1,752.8	3.7	48.2	21.73	422.0	-362.4	547.1	495.4	51.65	10.593			
1,800.0	1,798.7	1,858.2	1,854.8	3.9	48.2	23.26	415.0	-346.2	521.2	469.5	51.70	10.080			
1,900.0	1,898.0	1,953.8	1,948.9	4.2	48.6	24.77	408.5	-330.9	494.8	442.6	52.19	9.481			
2,000.0	1,997.2	2,049.4	2,043.0	4.4	49.3	26.44	402.0	-315.7	468.8	415.8	53.00	8.845			
2,100.0	2,096.4	2,144.9	2,137.2	4.7	50.4	28.30	395.5	-300.4	443.2	389.1	54.13	8.188			
2,200.0	2,195.7	2,240.5	2,231.3	5.0	51.8	30.38	389.0	-285.1	418.1	362.5	55.58	7.523			
2,300.0	2,294.9	2,336.1	2,325.4	5.3	53.5	32.72	382.5	-269.9	393.6	336.3	57.35	6.864			
2,400.0	2,394.1	2,431.7	2,419.6	5.6	55.4	35.35	376.0	-254.6	369.8	310.4	59.43	6.224			
2,500.0	2,493.4	2,527.3	2,513.7	5.8	57.6	38.32	369.5	-239.3	346.9	285.1	61.81	5.613			
2,600.0	2,592.6	2,622.9	2,607.8	6.1	60.0	41.68	363.0	-224.1	325.1	260.6	64.49	5.041			
2,700.0	2,691.8	2,718.4	2,701.9	6.4	62.6	45.50	356.4	-208.8	304.5	237.0	67.46	4.513			
2,800.0	2,791.0	2,814.0	2,796.1	6.7	65.4	49.81	349.9	-193.5	285.4	214.7	70.71	4.037			
2,900.0	2,890.3	2,909.6	2,890.2	7.0	68.3	54.68	343.4	-178.3	268.3	194.1	74.20	3.615			
3,000.0	2,889.5	3,005.2	2,984.3	7.3	71.3	60.12	336.9	-163.0	253.4	175.4	77.90	3.252			
3,100.0	3,088.7	3,100.8	3,078.5	7.6	74.5	66.14	330.4	-147.7	241.1	159.4	81.74	2.950			
3,200.0	3,188.0	3,196.3	3,172.6	7.9	77.7	72.67	323.9	-132.5	232.0	146.4	85.62	2.709			
3,300.0	3,287.2	3,291.9	3,266.7	8.2	81.1	79.59	317.4	-117.2	226.3	136.9	89.43	2.531			
3,400.0	3,386.4	3,387.5	3,360.9	8.6	84.5	86.73	310.9	-101.9	224.4	131.3	93.06	2.411			
3,400.2	3,386.6	3,387.7	3,361.0	8.6	84.5	86.74	310.8	-101.9	224.4	131.3	93.07	2.411 CC			
3,500.0	3,485.7	3,483.1	3,455.0	8.9	88.0	93.86	304.3	-86.7	226.3	129.9	96.44	2.347 ES			
3,600.0	3,584.9	3,578.7	3,549.1	9.2	91.5	100.79	297.8	-71.4	231.9	132.4	99.55	2.330 SF			
3,700.0	3,684.1	3,674.3	3,643.2	9.5	95.1	107.32	291.3	-56.1	241.1	138.6	102.43	2.354			
3,800.0	3,783.3	3,769.8	3,737.4	9.8	98.8	113.33	284.8	-40.9	253.3	148.1	105.15	2.409			
3,900.0	3,882.6	3,865.4	3,831.5	10.1	102.5	118.78	278.3	-25.6	268.2	160.4	107.80	2.488			
4,000.0	3,981.8	3,961.0	3,925.6	10.4	106.2	123.65	271.8	-10.3	285.4	174.9	110.42	2.584			
4,100.0	4,081.0	4,056.6	4,019.8	10.7	110.0	127.97	265.3	4.9	304.4	191.3	113.09	2.692			
4,200.0	4,180.3	4,152.2	4,113.9	11.0	113.7	131.78	258.8	20.2	325.0	209.2	115.82	2.806			
4,300.0	4,279.5	4,247.7	4,208.0	11.4	117.6	135.15	252.3	35.5	346.9	228.2	118.64	2.924			
4,400.0	4,378.7	4,343.3	4,302.2	11.7	121.4	138.12	245.7	50.7	369.8	248.2	121.54	3.042			
4,500.0	4,478.0	4,439.0	4,396.3	12.0	125.3	140.84	239.2	66.0	393.4	268.6	124.75	3.153			
4,600.0	4,577.5	4,535.4	4,491.3	12.2	129.2	143.22	232.7	81.4	415.6	287.0	128.59	3.232			
4,700.0	4,677.3	4,632.6	4,587.0	12.4	133.2	145.09	226.0	96.9	435.5	302.9	132.61	3.284			
4,800.0	4,777.3	4,730.6	4,683.6	12.6	137.2	146.54	219.4	112.6	452.9	316.2	136.74	3.312			
4,900.0	4,877.3	4,829.1	4,780.5	12.7	141.2	86.20	212.6	128.3	468.5	328.0	140.50	3.334			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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														Offset Site Error:	0.0 ft
Survey Program: 100-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
5,000.0	4,977.3	4,927.6	4,877.5	12.9	145.3	87.13	205.9	144.0	484.1	339.9	144.17	3.358			
5,100.0	5,077.3	5,037.0	4,985.4	13.1	149.8	88.05	198.8	160.8	499.1	350.9	148.27	3.366			
5,200.0	5,177.3	5,155.1	5,102.5	13.3	154.5	88.78	192.8	174.8	510.9	358.2	152.74	3.345			
5,300.0	5,277.3	5,274.3	5,221.2	13.5	159.1	89.26	188.7	184.5	519.0	361.7	157.31	3.299			
5,400.0	5,377.3	5,394.1	5,340.9	13.7	163.4	89.51	186.5	189.7	523.3	361.3	161.96	3.231			
5,500.0	5,477.3	5,506.5	5,453.3	13.8	164.7	89.55	186.1	190.5	524.0	360.6	163.45	3.206			
5,600.0	5,577.3	5,606.5	5,553.3	14.0	164.5	89.55	186.1	190.5	524.0	360.5	163.47	3.206			
5,700.0	5,677.3	5,706.5	5,653.3	14.2	164.4	89.55	186.1	190.5	524.0	360.4	163.59	3.203			
5,800.0	5,777.3	5,806.5	5,753.3	14.4	164.5	89.55	186.1	190.5	524.0	360.2	163.82	3.199			
5,900.0	5,877.3	5,906.5	5,853.3	14.6	164.6	89.55	186.1	190.5	524.0	359.9	164.15	3.192			
6,000.0	5,977.3	6,006.5	5,953.3	14.8	164.8	89.55	186.1	190.5	524.0	359.4	164.60	3.184			
6,100.0	6,077.3	6,106.5	6,053.3	15.0	165.1	89.55	186.1	190.5	524.0	358.9	165.14	3.173			
6,200.0	6,177.3	6,206.5	6,153.3	15.2	165.5	89.55	186.1	190.5	524.0	358.2	165.80	3.161			
6,300.0	6,277.3	6,306.5	6,253.3	15.4	166.0	89.55	186.1	190.5	524.0	357.5	166.55	3.146			
6,400.0	6,377.3	6,406.5	6,353.3	15.6	166.6	89.55	186.1	190.5	524.0	356.6	167.42	3.130			
6,500.0	6,477.3	6,506.5	6,453.3	15.8	167.3	89.55	186.1	190.5	524.0	355.6	168.38	3.112			
6,600.0	6,577.3	6,606.5	6,553.3	16.0	168.1	89.55	186.1	190.5	524.0	354.6	169.44	3.093			
6,700.0	6,677.3	6,706.5	6,653.3	16.2	169.0	89.55	186.1	190.5	524.0	353.4	170.60	3.072			
6,800.0	6,777.3	6,806.5	6,753.3	16.4	169.9	89.55	186.1	190.5	524.0	352.1	171.86	3.049			
6,900.0	6,877.3	6,906.5	6,853.3	16.6	171.0	89.55	186.1	190.5	524.0	350.8	173.21	3.025			
7,000.0	6,977.3	7,006.5	6,953.3	16.8	172.1	89.55	186.1	190.5	524.0	349.3	174.66	3.000			
7,100.0	7,077.3	7,106.5	7,053.3	17.0	173.3	89.55	186.1	190.5	524.0	347.8	176.19	2.974			
7,102.5	7,079.8	7,109.0	7,055.8	17.0	173.4	-90.45	186.1	190.5	524.0	347.8	176.23	2.973			
7,200.0	7,177.1	7,206.3	7,153.1	17.2	174.6	-90.99	186.1	190.5	524.1	346.2	177.83	2.947			
7,300.0	7,275.4	7,304.6	7,251.4	17.3	176.0	-92.87	186.1	190.5	524.7	345.2	179.52	2.923			
7,400.0	7,370.5	7,394.6	7,341.4	17.4	177.3	-95.86	188.2	190.5	527.4	346.6	180.83	2.917			
7,500.0	7,460.8	7,466.6	7,412.5	17.4	178.2	-99.44	198.9	190.5	536.7	355.7	180.97	2.965			
7,600.0	7,544.8	7,519.8	7,463.9	17.5	178.9	-102.01	212.5	190.5	557.3	377.3	180.00	3.096			
7,700.0	7,621.0	7,550.0	7,492.5	17.6	179.2	-101.94	222.3	190.5	592.3	413.1	179.22	3.305			
7,800.0	7,688.0	7,577.6	7,518.1	17.7	179.5	-100.47	232.6	190.5	641.4	462.0	179.40	3.575			
7,900.0	7,744.8	7,588.5	7,528.1	18.0	179.6	-95.85	237.0	190.5	702.6	520.7	181.88	3.863			
8,000.0	7,790.5	7,600.0	7,538.5	18.4	179.7	-89.72	241.8	190.5	772.8	587.7	185.09	4.175			
8,100.0	7,824.1	7,600.0	7,538.5	19.1	179.7	-80.98	241.8	190.5	848.8	661.9	186.93	4.541			
8,200.0	7,845.1	7,578.1	7,518.6	19.9	179.5	-69.44	232.8	190.5	927.6	744.8	182.73	5.076			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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													Offset Site Error:	0.0 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-44.32	436.1	-425.8	610.0					
100.0	100.0	76.0	76.0	0.1	1.5	-44.32	436.1	-425.8	609.5	607.9	1.63	373.361		
200.0	200.0	176.0	176.0	0.3	5.0	-44.32	436.1	-425.8	609.5	604.1	5.38	113.348		
300.0	300.0	276.0	276.0	0.6	9.0	-44.32	436.1	-425.8	609.5	599.9	9.60	63.476		
400.0	400.0	376.0	376.0	0.8	13.0	-44.32	436.1	-425.8	609.5	595.7	13.83	44.080		
500.0	500.0	476.0	476.0	1.0	17.0	-44.32	436.1	-425.8	609.5	591.4	18.05	33.764		
600.0	600.0	576.0	576.0	1.2	21.0	-44.32	436.1	-425.8	609.5	587.2	22.28	27.360		
700.0	700.0	676.0	676.0	1.5	25.0	-44.32	436.1	-425.8	609.5	583.0	26.50	22.999		
800.0	800.0	776.0	776.0	1.7	29.0	-44.32	436.1	-425.8	609.5	578.8	30.73	19.836		
900.0	900.0	876.0	876.0	1.9	33.0	-44.32	436.1	-425.8	609.5	574.5	34.95	17.439		
1,000.0	1,000.0	976.0	976.0	2.1	37.0	-44.32	436.1	-425.8	609.5	570.3	39.18	15.558		
1,100.0	1,100.0	1,076.0	1,076.0	2.4	40.7	-44.32	436.1	-425.8	609.5	566.4	43.06	14.155		
1,200.0	1,200.0	1,176.5	1,176.5	2.6	38.8	-44.52	434.6	-427.3	609.4	568.1	41.34	14.742		
1,300.0	1,300.0	1,276.7	1,276.5	2.8	36.2	-45.04	430.5	-431.2	609.4	570.3	39.03	15.612		
1,374.8	1,374.8	1,351.2	1,350.8	3.0	34.6	-45.65	425.9	-435.7	609.3	571.8	37.52	16.241		
1,400.0	1,400.0	1,376.3	1,375.7	3.0	34.0	-45.89	424.1	-437.5	609.3	572.3	37.03	16.454		
1,500.0	1,500.0	1,475.3	1,473.9	3.3	32.2	14.36	415.2	-446.2	607.8	572.3	35.49	17.126		
1,600.0	1,599.8	1,573.4	1,570.8	3.5	30.9	13.02	404.0	-457.1	603.3	568.9	34.40	17.538		
1,700.0	1,699.5	1,671.9	1,667.8	3.7	30.3	11.59	391.8	-469.1	595.9	561.9	33.99	17.532		
1,800.0	1,798.7	1,770.3	1,764.6	3.9	30.2	10.16	379.6	-481.0	585.7	551.6	34.16	17.146		
1,900.0	1,898.0	1,868.6	1,861.4	4.2	30.7	8.67	367.4	-493.0	575.4	540.5	34.95	16.462		
2,000.0	1,997.2	1,966.9	1,958.3	4.4	31.8	7.13	355.2	-504.9	565.6	529.3	36.31	15.577		
2,100.0	2,096.4	2,065.2	2,055.1	4.7	33.5	5.54	343.0	-516.8	556.1	518.0	38.16	14.573		
2,200.0	2,195.7	2,163.5	2,151.9	5.0	35.5	3.89	330.8	-528.8	547.1	506.7	40.44	13.530		
2,300.0	2,294.9	2,261.8	2,248.7	5.3	38.0	2.20	318.6	-540.7	538.6	495.5	43.07	12.507		
2,400.0	2,394.1	2,360.1	2,345.5	5.6	40.8	0.45	306.4	-552.6	530.6	484.6	45.98	11.540		
2,500.0	2,493.4	2,458.4	2,442.3	5.8	43.8	-1.35	294.1	-564.6	523.1	474.0	49.11	10.651		
2,600.0	2,592.6	2,556.7	2,539.1	6.1	47.0	-3.20	281.9	-576.5	516.1	463.7	52.42	9.845		
2,700.0	2,691.8	2,655.0	2,635.9	6.4	50.4	-5.09	269.7	-588.4	509.7	453.9	55.87	9.124		
2,800.0	2,791.0	2,753.3	2,732.8	6.7	53.9	-7.03	257.5	-600.3	503.9	444.5	59.41	8.482		
2,900.0	2,890.3	2,851.6	2,829.6	7.0	57.6	-9.01	245.3	-612.3	498.7	435.7	63.03	7.912		
3,000.0	2,989.5	2,949.9	2,926.4	7.3	61.3	-11.03	233.1	-624.2	494.1	427.4	66.71	7.408		
3,100.0	3,088.7	3,048.2	3,023.2	7.6	65.1	-13.08	220.9	-636.1	490.2	419.8	70.42	6.961		
3,200.0	3,188.0	3,146.5	3,120.0	7.9	68.9	-15.16	208.7	-648.1	486.9	412.8	74.16	6.566		
3,300.0	3,287.2	3,244.9	3,216.8	8.2	72.9	-17.27	196.5	-660.0	484.3	406.4	77.91	6.216		
3,400.0	3,386.4	3,343.2	3,313.6	8.6	76.8	-19.39	184.3	-671.9	482.4	400.7	81.68	5.906		
3,500.0	3,485.7	3,441.5	3,410.4	8.9	80.8	-21.53	172.1	-683.9	481.2	395.7	85.44	5.632		
3,600.0	3,584.9	3,539.8	3,507.2	9.2	84.8	-23.68	159.9	-695.8	480.6	391.4	89.20	5.388		
3,626.3	3,610.9	3,565.6	3,532.7	9.3	85.9	-24.24	156.7	-698.9	480.6	390.4	90.19	5.329		
3,700.0	3,684.1	3,638.6	3,604.6	9.5	88.9	-25.84	147.6	-707.8	480.8	387.8	92.98	5.171		
3,800.0	3,783.3	3,750.0	3,714.7	9.8	93.4	-28.07	135.4	-719.7	480.2	383.0	97.16	4.942		
3,900.0	3,882.6	3,862.3	3,826.2	10.1	97.7	-29.96	126.3	-728.6	477.4	376.1	101.34	4.711		
4,000.0	3,981.8	3,975.0	3,938.6	10.4	101.9	-31.52	120.2	-734.6	472.2	366.7	105.53	4.475		
4,100.0	4,081.0	4,088.0	4,051.5	10.7	106.0	-32.77	117.4	-737.4	464.3	354.6	109.71	4.232		
4,200.0	4,180.3	4,192.7	4,156.3	11.0	105.7	-33.69	117.1	-737.6	454.2	344.6	109.54	4.146		
4,300.0	4,279.5	4,292.0	4,255.5	11.4	104.2	-34.57	117.1	-737.6	443.9	335.9	108.04	4.109		
4,400.0	4,378.7	4,391.2	4,354.7	11.7	102.8	-35.50	117.1	-737.6	433.7	327.1	106.65	4.067		
4,500.0	4,478.0	4,490.5	4,454.0	12.0	101.5	-36.42	117.1	-737.6	423.8	318.5	105.33	4.024		
4,600.0	4,577.5	4,590.0	4,553.5	12.2	100.4	-37.10	117.1	-737.6	416.2	312.2	103.96	4.003		
4,700.0	4,677.3	4,689.8	4,653.3	12.4	99.4	-37.55	117.1	-737.6	411.4	308.7	102.68	4.007		
4,800.0	4,777.3	4,789.8	4,753.3	12.6	98.6	-37.74	117.1	-737.6	409.4	307.9	101.50	4.034		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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														Offset Site Error:	0.0 ft
Survey Program: 100-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
4,848.1	4,825.4	4,837.9	4,801.4	12.6	98.3	-37.76	117.1	-737.6	409.2	308.0	101.17	4.045			
4,900.0	4,877.3	4,889.8	4,853.3	12.7	97.9	-99.12	117.1	-737.6	409.3	308.5	100.84	4.059			
5,000.0	4,977.3	4,989.8	4,953.3	12.9	97.4	-99.12	117.1	-737.6	409.3	308.9	100.48	4.074			
5,100.0	5,077.3	5,089.8	5,053.3	13.1	97.1	-99.12	117.1	-737.6	409.3	309.0	100.31	4.081			
5,200.0	5,177.3	5,189.8	5,153.3	13.3	96.9	-99.12	117.1	-737.6	409.3	309.0	100.31	4.081			
5,300.0	5,277.3	5,289.8	5,253.3	13.5	96.9	-99.12	117.1	-737.6	409.3	308.8	100.50	4.073			
5,400.0	5,377.3	5,389.8	5,353.3	13.7	97.0	-99.12	117.1	-737.6	409.3	308.5	100.87	4.058			
5,500.0	5,477.3	5,489.8	5,453.3	13.8	97.3	-99.12	117.1	-737.6	409.3	307.9	101.41	4.036			
5,600.0	5,577.3	5,589.8	5,553.3	14.0	97.8	-99.12	117.1	-737.6	409.3	307.2	102.14	4.008			
5,700.0	5,677.3	5,689.8	5,653.3	14.2	98.4	-99.12	117.1	-737.6	409.3	306.3	103.05	3.972			
5,800.0	5,777.3	5,789.8	5,753.3	14.4	99.2	-99.12	117.1	-737.6	409.3	305.2	104.12	3.931			
5,900.0	5,877.3	5,889.8	5,853.3	14.6	100.2	-99.12	117.1	-737.6	409.3	304.0	105.36	3.885			
6,000.0	5,977.3	5,989.8	5,953.3	14.8	101.3	-99.12	117.1	-737.6	409.3	302.6	106.76	3.834			
6,100.0	6,077.3	6,089.8	6,053.3	15.0	102.5	-99.12	117.1	-737.6	409.3	301.0	108.32	3.779			
6,200.0	6,177.3	6,189.8	6,153.3	15.2	103.9	-99.12	117.1	-737.6	409.3	299.3	110.03	3.720			
6,300.0	6,277.3	6,289.8	6,253.3	15.4	105.4	-99.12	117.1	-737.6	409.3	297.5	111.88	3.659			
6,400.0	6,377.3	6,389.8	6,353.3	15.6	107.0	-99.12	117.1	-737.6	409.3	295.5	113.86	3.595			
6,500.0	6,477.3	6,489.8	6,453.3	15.8	108.8	-99.12	117.1	-737.6	409.3	293.4	115.97	3.530			
6,600.0	6,577.3	6,589.8	6,553.3	16.0	110.7	-99.12	117.1	-737.6	409.3	291.1	118.20	3.463			
6,700.0	6,677.3	6,689.8	6,653.3	16.2	112.7	-99.12	117.1	-737.6	409.3	288.8	120.55	3.396			
6,800.0	6,777.3	6,789.8	6,753.3	16.4	114.7	-99.12	117.1	-737.6	409.3	286.3	123.00	3.328			
6,900.0	6,877.3	6,889.8	6,853.3	16.6	116.9	-99.12	117.1	-737.6	409.3	283.8	125.55	3.260			
7,000.0	6,977.3	6,989.8	6,953.3	16.8	119.2	-99.12	117.1	-737.6	409.3	281.1	128.19	3.193			
7,100.0	7,077.3	7,092.5	7,056.0	17.0	121.7	-99.05	117.6	-737.6	409.3	278.3	130.99	3.124			
7,200.0	7,177.1	7,201.3	7,163.6	17.2	123.9	83.92	132.4	-737.6	406.7	272.6	134.14	3.032			
7,297.2	7,272.7	7,290.7	7,248.7	17.3	125.5	90.00	159.7	-737.6	404.2	267.6	136.55	2.960 CC			
7,300.0	7,275.4	7,293.0	7,250.8	17.3	125.5	90.19	160.5	-737.6	404.2	267.6	136.60	2.959 ES, SF			
7,400.0	7,370.5	7,361.0	7,311.9	17.4	126.5	96.31	190.1	-737.6	410.3	272.6	137.70	2.980			
7,500.0	7,460.6	7,406.6	7,350.8	17.4	127.0	99.88	214.0	-737.6	432.7	295.1	137.60	3.145			
7,600.0	7,544.8	7,434.3	7,373.5	17.5	127.4	100.04	230.0	-737.6	473.8	336.4	137.42	3.448			
7,700.0	7,621.0	7,450.0	7,385.9	17.6	127.6	96.92	239.5	-737.6	531.3	393.1	138.22	3.844			
7,800.0	7,688.0	7,450.0	7,385.9	17.7	127.6	89.66	239.5	-737.6	600.8	460.8	140.04	4.290			
7,900.0	7,744.8	7,450.0	7,385.9	18.0	127.6	80.59	239.5	-737.6	677.9	537.2	140.73	4.817			
8,000.0	7,790.5	7,450.0	7,385.9	18.4	127.6	70.46	239.5	-737.6	759.2	621.2	138.08	5.498			
8,100.0	7,824.1	7,427.1	7,367.6	19.1	127.3	58.07	225.7	-737.6	841.6	713.0	128.56	6.546			
8,200.0	7,845.1	7,400.0	7,345.3	19.9	127.0	47.44	210.4	-737.6	923.6	807.8	115.74	7.980			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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														Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-157.69	-320.9	-131.7	347.1						
100.0	100.0	87.5	87.5	0.1	0.1	-157.73	-320.9	-131.4	346.8	346.6	0.23	1,517.333			
200.0	200.0	188.8	188.8	0.3	0.4	-157.80	-320.8	-130.9	346.5	345.8	0.69	502.786			
300.0	300.0	289.8	289.8	0.6	0.6	-157.82	-320.2	-130.5	345.8	344.7	1.15	300.688			
400.0	400.0	389.9	389.9	0.8	0.8	-157.79	-319.4	-130.4	345.0	343.4	1.59	216.362			
500.0	500.0	489.9	489.9	1.0	1.0	-157.68	-318.4	-130.7	344.2	342.1	2.03	169.418			
600.0	600.0	589.8	589.8	1.2	1.2	-157.51	-317.2	-131.3	343.3	340.9	2.47	139.133			
700.0	700.0	688.6	688.6	1.5	1.4	-157.28	-316.1	-132.3	342.7	339.8	2.90	118.280			
800.0	800.0	788.4	788.3	1.7	1.6	-157.04	-315.1	-133.5	342.3	338.9	3.33	102.700			
900.0	900.0	888.4	888.3	1.9	1.9	-156.78	-314.2	-134.8	341.9	338.1	3.78	90.463			
1,000.0	1,000.0	988.7	988.6	2.1	2.1	-156.46	-313.0	-136.4	341.4	337.2	4.24	80.622			
1,100.0	1,100.0	1,089.3	1,089.2	2.4	2.3	-156.08	-311.6	-138.2	340.9	336.2	4.70	72.512			
1,200.0	1,200.0	1,189.4	1,189.2	2.6	2.6	-155.66	-310.0	-140.2	340.2	335.0	5.17	65.779			
1,300.0	1,300.0	1,288.7	1,288.5	2.8	2.8	-155.22	-308.4	-142.3	339.6	334.0	5.64	60.190			
1,400.0	1,400.0	1,387.6	1,387.4	3.0	3.1	-154.81	-307.1	-144.4	339.4	333.3	6.11	55.544			
1,422.2	1,422.2	1,409.5	1,409.3	3.1	3.1	-93.36	-306.9	-144.9	339.4	333.1	6.21	54.624			
1,500.0	1,500.0	1,487.0	1,486.8	3.3	3.3	-93.33	-306.1	-146.6	339.5	332.9	6.57	51.668			
1,600.0	1,599.8	1,586.1	1,585.8	3.5	3.6	-93.77	-305.2	-148.9	340.0	332.9	7.02	48.405			
1,700.0	1,699.5	1,685.0	1,684.7	3.7	3.8	-94.76	-304.5	-151.4	341.0	333.5	7.48	45.579			
1,800.0	1,798.7	1,784.6	1,784.3	3.9	4.0	-96.26	-303.9	-154.1	342.7	334.7	7.96	43.059			
1,900.0	1,898.0	1,884.6	1,884.2	4.2	4.3	-97.88	-303.2	-156.7	344.5	336.1	8.45	40.766			
2,000.0	1,997.2	1,984.3	1,983.9	4.4	4.5	-99.47	-302.5	-159.2	346.6	337.6	8.96	38.686			
2,100.0	2,096.4	2,084.3	2,083.9	4.7	4.8	-101.05	-301.6	-161.7	348.8	339.3	9.48	36.801			
2,200.0	2,195.7	2,183.9	2,183.4	5.0	5.0	-102.63	-300.8	-164.0	351.2	341.2	10.00	35.104			
2,300.0	2,294.9	2,283.3	2,282.8	5.3	5.3	-104.20	-299.9	-166.2	353.8	343.3	10.53	33.585			
2,400.0	2,394.1	2,382.4	2,381.9	5.6	5.5	-105.75	-299.2	-168.3	356.8	345.7	11.07	32.237			
2,500.0	2,493.4	2,482.2	2,481.6	5.8	5.8	-107.27	-298.4	-170.5	360.1	348.5	11.61	31.027			
2,600.0	2,592.6	2,581.7	2,581.2	6.1	6.0	-108.74	-297.6	-172.9	363.5	351.4	12.14	29.932			
2,700.0	2,691.8	2,682.4	2,681.7	6.4	6.3	-110.21	-296.6	-175.2	367.1	354.4	12.69	28.926			
2,800.0	2,791.0	2,782.1	2,781.4	6.7	6.6	-111.66	-295.4	-177.2	370.6	357.4	13.24	28.002			
2,900.0	2,890.3	2,880.8	2,880.1	7.0	6.8	-113.11	-294.4	-179.0	374.5	360.8	13.78	27.180			
3,000.0	2,989.5	2,980.2	2,979.5	7.3	7.1	-114.56	-293.5	-180.7	378.8	364.5	14.32	26.448			
3,100.0	3,088.7	3,078.9	3,078.2	7.6	7.3	-115.95	-292.7	-182.5	383.4	368.5	14.86	25.796			
3,200.0	3,188.0	3,176.8	3,176.1	7.9	7.6	-117.23	-292.2	-184.7	388.5	373.1	15.39	25.238			
3,300.0	3,287.2	3,274.2	3,273.4	8.2	7.8	-118.27	-292.1	-188.3	394.3	378.3	15.91	24.774			
3,400.0	3,386.4	3,375.0	3,374.0	8.6	8.1	-118.97	-292.2	-194.5	400.4	383.9	16.45	24.345			
3,500.0	3,485.7	3,478.2	3,476.9	8.9	8.3	-119.52	-291.7	-201.7	405.9	388.9	16.99	23.886			
3,600.0	3,584.9	3,579.1	3,577.7	9.2	8.6	-120.29	-290.6	-207.1	410.8	393.3	17.54	23.424			
3,700.0	3,684.1	3,677.7	3,676.3	9.5	8.9	-121.26	-289.4	-210.7	415.8	397.7	18.07	23.005			
3,800.0	3,783.3	3,776.1	3,774.6	9.8	9.1	-122.39	-288.4	-212.9	421.2	402.6	18.61	22.638			
3,900.0	3,882.6	3,875.4	3,873.9	10.1	9.4	-123.59	-287.5	-214.4	427.0	407.9	19.14	22.311			
4,000.0	3,981.8	3,974.8	3,973.3	10.4	9.6	-124.77	-286.7	-215.9	433.0	413.3	19.67	22.013			
4,100.0	4,081.0	4,075.0	4,073.5	10.7	9.9	-125.94	-285.7	-217.2	439.1	418.9	20.19	21.743			
4,200.0	4,180.3	4,172.2	4,170.7	11.0	10.1	-127.16	-284.7	-217.6	445.4	424.8	20.65	21.573			
4,300.0	4,279.5	4,270.1	4,268.6	11.4	10.2	-128.47	-284.0	-217.1	452.5	431.5	21.02	21.530			
4,400.0	4,378.7	4,367.3	4,365.7	11.7	10.3	-129.73	-283.6	-216.5	460.0	438.7	21.33	21.570			
4,500.0	4,478.0	4,464.4	4,462.8	12.0	10.3	-130.96	-283.8	-215.9	468.2	446.6	21.59	21.685			
4,600.0	4,577.5	4,563.8	4,562.3	12.2	10.3	-131.96	-284.2	-215.5	475.1	453.3	21.78	21.812			
4,700.0	4,677.3	4,663.3	4,661.7	12.4	10.3	-132.59	-284.6	-215.2	479.6	457.6	21.96	21.835			
4,800.0	4,777.3	4,760.2	4,758.7	12.6	10.4	-132.85	-285.3	-214.9	482.1	459.9	22.15	21.765			
4,900.0	4,877.3	4,858.5	4,856.9	12.7	10.4	-165.75	-286.7	-214.5	483.6	461.2	22.37	21.622			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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														Offset Site Error:	0.0 ft
Existings Sec.32-T1N-R67W - Jacobucci 23-32 (Exist.) - Wellbore #1 - Wellbore #1														Offset Well Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS															
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
5,000.0	4,977.3	4,957.8	4,956.3	12.9	10.5	165.76	-288.2	-214.1	485.2	462.5	22.62	21.444			
5,100.0	5,077.3	5,056.5	5,054.9	13.1	10.5	165.79	-290.0	-213.9	487.0	464.1	22.89	21.270			
5,200.0	5,177.3	5,155.1	5,153.5	13.3	10.6	165.78	-291.9	-213.4	489.0	465.9	23.16	21.115			
5,300.0	5,277.3	5,254.8	5,253.1	13.5	10.7	165.69	-294.0	-212.1	491.3	467.9	23.41	20.984			
5,400.0	5,377.3	5,355.2	5,353.5	13.7	10.7	165.53	-295.8	-210.1	493.5	469.9	23.66	20.859			
5,500.0	5,477.3	5,455.1	5,453.4	13.8	10.8	165.35	-297.5	-208.1	495.7	471.8	23.91	20.731			
5,600.0	5,577.3	5,555.4	5,553.6	14.0	10.8	165.20	-299.3	-206.3	497.9	473.8	24.17	20.598			
5,700.0	5,677.3	5,655.9	5,654.1	14.2	10.9	165.09	-301.1	-204.8	500.0	475.6	24.45	20.453			
5,800.0	5,777.3	5,755.8	5,754.0	14.4	11.0	165.02	-302.9	-203.7	502.0	477.3	24.73	20.297			
5,900.0	5,877.3	5,858.0	5,856.1	14.6	11.1	164.98	-304.7	-202.9	504.0	478.9	25.04	20.123			
6,000.0	5,977.3	5,961.8	5,959.9	14.8	11.2	165.01	-306.0	-202.8	505.2	479.8	25.38	19.906			
6,100.0	6,077.3	6,065.3	6,063.5	15.0	11.4	165.02	-306.5	-202.7	505.7	480.0	25.71	19.667			
6,200.0	6,177.3	6,168.4	6,166.6	15.2	11.5	164.99	-306.3	-202.5	505.6	479.5	26.05	19.405			
6,300.0	6,277.3	6,271.5	6,269.7	15.4	11.7	164.93	-305.4	-202.2	504.8	478.4	26.42	19.106			
6,400.0	6,377.3	6,373.4	6,371.5	15.6	11.9	164.90	-304.1	-202.3	503.5	476.7	26.82	18.775			
6,500.0	6,477.3	6,474.0	6,472.2	15.8	12.1	164.90	-302.6	-202.7	502.0	474.8	27.23	18.434			
6,600.0	6,577.3	6,574.6	6,572.7	16.0	12.3	164.91	-301.1	-203.2	500.4	472.7	27.66	18.093			
6,700.0	6,677.3	6,673.4	6,671.5	16.2	12.5	164.89	-299.5	-203.4	498.8	470.7	28.06	17.777			
6,800.0	6,777.3	6,773.7	6,771.8	16.4	12.6	164.72	-297.7	-202.4	497.4	468.9	28.43	17.496			
6,900.0	6,877.3	6,875.5	6,873.5	16.6	12.8	164.46	-295.5	-200.7	495.7	466.9	28.79	17.218			
7,000.0	6,977.3	6,976.8	6,974.8	16.8	13.0	164.11	-292.7	-198.3	493.7	464.5	29.15	16.938			
7,100.0	7,077.3	7,076.7	7,074.6	17.0	13.1	163.69	-289.7	-195.4	491.5	462.0	29.50	16.663			
7,200.0	7,177.1	7,177.1	7,174.9	17.2	13.3	-17.13	-286.4	-192.0	484.6	455.0	29.59	16.376			
7,300.0	7,275.4	7,274.3	7,271.9	17.3	13.4	-18.86	-282.9	-187.9	465.3	436.1	29.26	15.905			
7,400.0	7,370.5	7,368.5	7,365.9	17.4	13.6	-21.78	-279.3	-183.2	434.6	406.0	28.58	15.204			
7,500.0	7,460.8	7,460.3	7,457.5	17.4	13.7	-26.55	-275.3	-178.2	392.9	365.2	27.73	14.170			
7,600.0	7,544.8	7,544.2	7,541.2	17.5	13.9	-34.04	-270.5	-173.5	341.8	314.7	27.07	12.626			
7,700.0	7,621.0	7,616.7	7,613.3	17.6	14.0	-45.25	-265.6	-168.9	284.7	257.5	27.26	10.444			
7,800.0	7,688.0	7,677.1	7,673.5	17.7	14.1	-60.12	-261.5	-164.8	228.5	199.7	28.77	7.943			
7,900.0	7,744.8	7,727.1	7,723.2	18.0	14.2	-76.10	-258.2	-161.2	185.7	154.9	30.75	6.038			
7,968.7	7,777.5	7,755.2	7,751.2	18.2	14.2	-85.17	-256.5	-159.0	175.1	143.3	31.70	5.521 CC, ES, SF			
8,000.0	7,790.5	7,766.3	7,762.2	18.4	14.2	-88.37	-255.8	-158.2	177.4	145.4	31.98	5.547			
8,100.0	7,824.1	7,794.0	7,789.8	19.1	14.3	-93.86	-254.3	-155.9	214.4	181.7	32.75	6.547			
8,200.0	7,845.1	7,809.4	7,805.2	19.9	14.3	-91.62	-253.4	-154.6	282.4	248.7	33.67	8.386			
8,300.0	7,853.2	7,812.1	7,807.8	20.9	14.3	-81.30	-253.3	-154.4	365.2	331.0	34.17	10.685			
8,400.0	7,853.5	7,807.0	7,802.7	22.0	14.3	-78.36	-253.5	-154.8	454.6	419.7	34.94	13.010			
8,500.0	7,853.8	7,801.8	7,797.5	23.2	14.3	-76.74	-253.8	-155.3	547.7	511.7	35.91	15.249			
8,600.0	7,854.0	7,796.3	7,792.1	24.5	14.3	-75.07	-254.1	-155.7	642.7	605.8	36.93	17.405			
8,700.0	7,854.3	7,790.7	7,786.5	25.8	14.3	-73.36	-254.4	-156.2	739.1	701.1	37.97	19.467			
8,800.0	7,854.5	7,785.0	7,780.8	27.3	14.3	-71.64	-254.8	-156.7	836.3	797.3	39.02	21.433			
8,900.0	7,854.8	7,779.1	7,775.0	28.8	14.3	-69.90	-255.1	-157.1	934.0	893.9	40.06	23.312			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
9,100.0	7,855.2	7,880.2	7,880.2	31.9	157.6	-89.78	-2,163.8	165.3	937.6	748.5	189.12	4.958					
9,200.0	7,855.5	7,880.5	7,880.5	33.5	157.6	-89.81	-2,163.8	165.3	854.6	663.8	190.76	4.480					
9,300.0	7,855.7	7,880.7	7,880.7	35.2	157.6	-89.83	-2,163.8	165.3	775.6	583.2	192.42	4.031					
9,400.0	7,856.0	7,881.0	7,881.0	36.8	157.6	-89.86	-2,163.8	165.3	702.0	507.8	194.11	3.616					
9,500.0	7,856.2	7,881.2	7,881.2	38.5	157.6	-89.89	-2,163.8	165.3	635.6	439.8	195.82	3.246					
9,600.0	7,856.5	7,881.5	7,881.5	40.2	157.6	-89.92	-2,163.8	165.3	578.9	381.4	197.55	2.931					
9,700.0	7,856.7	7,881.7	7,881.7	42.0	157.6	-89.95	-2,163.8	165.3	535.1	335.8	199.30	2.685					
9,800.0	7,856.9	7,881.9	7,881.9	43.7	157.6	-89.97	-2,163.8	165.3	507.5	306.5	201.06	2.524					
9,894.0	7,857.2	7,882.2	7,882.2	45.4	157.6	-90.00	-2,163.8	165.3	498.7	296.0	202.73	2.460 CC					
9,900.0	7,857.2	7,882.2	7,882.2	45.5	157.6	-90.00	-2,163.8	165.3	498.8	295.9	202.84	2.459 ES, SF					
10,000.0	7,857.4	7,882.4	7,882.4	47.2	157.6	-90.03	-2,163.8	165.3	509.9	305.3	204.62	2.492					
10,100.0	7,857.7	7,882.7	7,882.7	49.0	157.7	-90.06	-2,163.8	165.3	539.6	333.2	206.42	2.614					
10,200.0	7,857.9	7,882.9	7,882.9	50.8	157.7	-90.09	-2,163.8	165.3	585.2	376.9	208.23	2.810					
10,300.0	7,858.2	7,883.2	7,883.2	52.6	157.7	-90.11	-2,163.8	165.3	643.1	433.1	210.04	3.062					
10,400.0	7,858.4	7,883.4	7,883.4	54.4	157.7	-90.14	-2,163.8	165.3	710.5	498.7	211.86	3.354					
10,500.0	7,858.7	7,883.7	7,883.7	56.2	157.7	-90.17	-2,163.8	165.3	784.9	571.2	213.69	3.673					
10,600.0	7,858.9	7,883.9	7,883.9	58.1	157.7	-90.20	-2,163.8	165.3	864.4	648.9	215.52	4.011					
10,700.0	7,859.1	7,884.1	7,884.1	59.9	157.7	-90.23	-2,163.8	165.3	947.9	730.5	217.36	4.361					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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														Offset Site Error:	0.0 ft
Survey Program: 5107-UNKNOWN														Offset Well Error:	0.0 ft
Reference															
Offset															
Semi Major Axis															
Distance															
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-154.14	-433.5	-210.1	481.8						
100.0	100.0	91.0	91.0	0.1	1.8	-154.14	-433.5	-210.1	481.7	479.8	1.93	249.256			
200.0	200.0	191.0	191.0	0.3	3.8	-154.14	-433.5	-210.1	481.7	477.5	4.16	115.869			
300.0	300.0	291.0	291.0	0.6	5.8	-154.14	-433.5	-210.1	481.7	475.3	6.38	75.478			
400.0	400.0	391.0	391.0	0.8	7.8	-154.14	-433.5	-210.1	481.7	473.1	8.61	55.968			
500.0	500.0	491.0	491.0	1.0	9.8	-154.14	-433.5	-210.1	481.7	470.9	10.83	44.472			
600.0	600.0	591.0	591.0	1.2	11.8	-154.14	-433.5	-210.1	481.7	468.7	13.06	36.894			
700.0	700.0	691.0	691.0	1.5	13.8	-154.14	-433.5	-210.1	481.7	466.4	15.28	31.523			
800.0	800.0	791.0	791.0	1.7	15.8	-154.14	-433.5	-210.1	481.7	464.2	17.51	27.517			
900.0	900.0	891.0	891.0	1.9	17.8	-154.14	-433.5	-210.1	481.7	462.0	19.73	24.414			
1,000.0	1,000.0	991.0	991.0	2.1	19.8	-154.14	-433.5	-210.1	481.7	459.8	21.96	21.940			
1,100.0	1,100.0	1,091.0	1,091.0	2.4	21.8	-154.14	-433.5	-210.1	481.7	457.5	24.18	19.922			
1,200.0	1,200.0	1,191.0	1,191.0	2.6	23.8	-154.14	-433.5	-210.1	481.7	455.3	26.40	18.243			
1,300.0	1,300.0	1,291.0	1,291.0	2.8	25.8	-154.14	-433.5	-210.1	481.7	453.1	28.63	16.825			
1,400.0	1,400.0	1,391.0	1,391.0	3.0	27.8	-154.14	-433.5	-210.1	481.7	450.9	30.85	15.612 CC			
1,500.0	1,500.0	1,491.0	1,491.0	3.3	29.8	-92.97	-433.5	-210.1	481.8	448.7	33.07	14.568			
1,600.0	1,599.8	1,590.8	1,590.8	3.5	31.8	-93.59	-433.5	-210.1	482.1	446.8	35.28	13.663			
1,700.0	1,699.5	1,690.5	1,690.5	3.7	33.8	-94.60	-433.5	-210.1	482.7	445.2	37.50	12.872			
1,800.0	1,798.7	1,789.7	1,789.7	3.9	35.8	-95.98	-433.5	-210.1	483.8	444.1	39.72	12.180			
1,900.0	1,898.0	1,889.0	1,889.0	4.2	37.8	-97.42	-433.5	-210.1	485.3	443.3	41.96	11.566			
2,000.0	1,997.2	1,988.2	1,988.2	4.4	39.8	-98.86	-433.5	-210.1	487.0	442.8	44.20	11.019			
2,100.0	2,096.4	2,087.4	2,087.4	4.7	41.7	-100.28	-433.5	-210.1	489.1	442.7	46.45	10.530 ES			
2,200.0	2,195.7	2,186.7	2,186.7	5.0	43.7	-101.69	-433.5	-210.1	491.5	442.8	48.70	10.091			
2,300.0	2,294.9	2,285.9	2,285.9	5.3	45.7	-103.09	-433.5	-210.1	494.2	443.2	50.96	9.697			
2,400.0	2,394.1	2,385.1	2,385.1	5.6	47.7	-104.47	-433.5	-210.1	497.1	443.9	53.22	9.341			
2,500.0	2,493.4	2,484.4	2,484.4	5.8	49.7	-105.83	-433.5	-210.1	500.4	444.9	55.49	9.019			
2,600.0	2,592.6	2,583.6	2,583.6	6.1	51.7	-107.18	-433.5	-210.1	503.9	446.2	57.75	8.726			
2,700.0	2,691.8	2,682.8	2,682.8	6.4	53.7	-108.50	-433.5	-210.1	507.8	447.8	60.01	8.461			
2,800.0	2,791.0	2,782.0	2,782.0	6.7	55.6	-109.81	-433.5	-210.1	511.9	449.6	62.28	8.219			
2,900.0	2,890.3	2,881.3	2,881.3	7.0	57.6	-111.09	-433.5	-210.1	516.2	451.7	64.54	7.998			
3,000.0	2,889.5	2,880.5	2,880.5	7.3	59.6	-112.35	-433.5	-210.1	520.8	454.0	66.80	7.796			
3,100.0	3,088.7	3,079.7	3,079.7	7.6	61.6	-113.59	-433.5	-210.1	525.7	456.6	69.07	7.612			
3,200.0	3,188.0	3,179.0	3,179.0	7.9	63.6	-114.81	-433.5	-210.1	530.8	459.5	71.32	7.442			
3,300.0	3,287.2	3,278.2	3,278.2	8.2	65.6	-116.01	-433.5	-210.1	536.2	462.6	73.58	7.286			
3,400.0	3,386.4	3,377.4	3,377.4	8.6	67.5	-117.18	-433.5	-210.1	541.7	465.9	75.84	7.143			
3,500.0	3,485.7	3,476.7	3,476.7	8.9	69.5	-118.32	-433.5	-210.1	547.5	469.4	78.09	7.011			
3,600.0	3,584.9	3,575.9	3,575.9	9.2	71.5	-119.44	-433.5	-210.1	553.6	473.2	80.35	6.890			
3,700.0	3,684.1	3,675.1	3,675.1	9.5	73.5	-120.54	-433.5	-210.1	559.8	477.2	82.60	6.777			
3,800.0	3,783.3	3,774.3	3,774.3	9.8	75.5	-121.62	-433.5	-210.1	566.2	481.4	84.84	6.673			
3,900.0	3,882.6	3,873.6	3,873.6	10.1	77.5	-122.66	-433.5	-210.1	572.8	485.7	87.09	6.577			
4,000.0	3,981.8	3,972.8	3,972.8	10.4	79.5	-123.69	-433.5	-210.1	579.6	490.3	89.33	6.489			
4,100.0	4,081.0	4,072.0	4,072.0	10.7	81.4	-124.69	-433.5	-210.1	586.6	495.1	91.58	6.406			
4,200.0	4,180.3	4,171.3	4,171.3	11.0	83.4	-125.67	-433.5	-210.1	593.8	500.0	93.82	6.330			
4,300.0	4,279.5	4,270.5	4,270.5	11.4	85.4	-126.62	-433.5	-210.1	601.2	505.1	96.05	6.259			
4,400.0	4,378.7	4,369.7	4,369.7	11.7	87.4	-127.55	-433.5	-210.1	608.7	510.4	98.29	6.193			
4,500.0	4,478.0	4,469.0	4,469.0	12.0	89.4	-128.49	-433.5	-210.1	616.2	515.7	100.56	6.128			
4,600.0	4,577.5	4,568.5	4,568.5	12.2	91.4	-129.26	-433.5	-210.1	622.2	519.4	102.84	6.050			
4,700.0	4,677.3	4,668.3	4,668.3	12.4	93.4	-129.75	-433.5	-210.1	626.0	521.0	105.07	5.958			
4,800.0	4,777.3	4,768.3	4,768.3	12.6	95.4	-129.95	-433.5	-210.1	627.7	520.4	107.26	5.852			
4,900.0	4,877.3	4,868.3	4,868.3	12.7	97.4	-168.67	-433.5	-210.1	627.7	518.3	109.43	5.736			
5,000.0	4,977.3	4,968.3	4,968.3	12.9	99.4	-168.67	-433.5	-210.1	627.7	516.1	111.62	5.623			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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													Offset Site Error:	0.0 ft
Survey Program: 5107-UNKNOWN													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	5,077.3	5,068.3	5,068.3	13.1	101.4	168.67	-433.5	-210.1	627.7	513.9	113.82	5.515		
5,113.8	5,091.1	5,082.1	5,082.1	13.1	101.6	168.67	-433.5	-210.1	627.7	513.6	114.12	5.500		
5,200.0	5,177.3	5,107.0	5,107.0	13.3	102.1	168.67	-433.5	-210.1	630.7	515.9	114.79	5.494 SF		
5,300.0	5,277.3	5,107.0	5,107.0	13.5	102.1	168.67	-433.5	-210.1	648.1	533.1	114.98	5.636		
5,400.0	5,377.3	5,107.0	5,107.0	13.7	102.1	168.67	-433.5	-210.1	679.9	564.7	115.18	5.903		
5,500.0	5,477.3	5,107.0	5,107.0	13.8	102.1	168.67	-433.5	-210.1	724.3	608.9	115.38	6.277		
5,600.0	5,577.3	5,107.0	5,107.0	14.0	102.1	168.67	-433.5	-210.1	779.0	663.4	115.58	6.740		
5,700.0	5,677.3	5,107.0	5,107.0	14.2	102.1	168.67	-433.5	-210.1	842.1	726.3	115.78	7.273		
5,800.0	5,777.3	5,107.0	5,107.0	14.4	102.1	168.67	-433.5	-210.1	911.8	795.8	115.98	7.861		
5,900.0	5,877.3	5,107.0	5,107.0	14.6	102.1	168.67	-433.5	-210.1	986.7	870.5	116.18	8.493		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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													Offset Site Error:	0.0 ft
Existings Sec.32-T1N-R67W - Smith Lane 1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Well Error:	0.0 ft
Survey Program: 8493-UNKNOWN														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,400.0	7,865.7	7,949.7	7,949.7	110.4	159.0	89.73	-6,535.3	-784.6	975.9	706.7	269.23	3.625		
13,500.0	7,866.0	7,950.0	7,950.0	112.2	159.0	89.76	-6,535.3	-784.6	888.5	617.3	271.13	3.277		
13,600.0	7,866.2	7,950.2	7,950.2	114.1	159.0	89.79	-6,535.3	-784.6	803.9	530.9	273.03	2.944		
13,700.0	7,866.5	7,950.5	7,950.5	116.0	159.0	89.82	-6,535.3	-784.6	723.3	448.4	274.93	2.631		
13,800.0	7,866.7	7,950.7	7,950.7	117.9	159.0	89.86	-6,535.3	-784.6	648.2	371.3	276.83	2.341		
13,900.0	7,867.0	7,951.0	7,951.0	119.8	159.0	89.89	-6,535.3	-784.6	580.5	301.8	278.73	2.083		
14,000.0	7,867.2	7,951.2	7,951.2	121.7	159.0	89.92	-6,535.3	-784.6	523.4	242.8	280.63	1.865		
14,100.0	7,867.5	7,951.5	7,951.5	123.6	159.0	89.95	-6,535.3	-784.6	480.5	198.0	282.53	1.701		
14,200.0	7,867.7	7,951.7	7,951.7	125.5	159.0	89.98	-6,535.3	-784.6	455.8	171.4	284.43	1.603		
14,265.4	7,867.9	7,951.9	7,951.9	126.7	159.0	90.00	-6,535.3	-784.6	451.1	165.5	285.68	1.579	CC, ES, SF	
14,300.0	7,867.9	7,951.9	7,951.9	127.4	159.0	90.01	-6,535.3	-784.6	452.5	166.1	286.34	1.580		
14,400.0	7,868.2	7,952.2	7,952.2	129.3	159.0	90.04	-6,535.3	-784.6	470.8	182.5	288.24	1.633		
14,500.0	7,868.4	7,952.4	7,952.4	131.2	159.0	90.07	-6,535.3	-784.6	508.5	218.3	290.14	1.753		
14,600.0	7,868.7	7,952.7	7,952.7	133.1	159.1	90.10	-6,535.3	-784.6	561.7	269.6	292.05	1.923		
14,700.0	7,868.9	7,952.9	7,952.9	135.0	159.1	90.13	-6,535.3	-784.6	626.4	332.5	293.95	2.131		
14,731.7	7,869.0	7,953.0	7,953.0	135.6	159.1	90.14	-6,535.3	-784.6	648.8	354.2	294.55	2.203		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
1,900.0	1,898.0	2,022.9	2,015.9	4.2	4.8	-26.40	67.4	-1,022.5	996.6	988.1	8.50	117.223		
2,000.0	1,997.2	2,120.1	2,112.2	4.4	5.1	-26.45	71.5	-1,010.0	973.0	964.1	8.95	108.670		
2,100.0	2,096.4	2,217.2	2,208.5	4.7	5.4	-26.50	75.5	-997.5	949.4	940.0	9.41	100.888		
2,200.0	2,195.7	2,314.4	2,304.7	5.0	5.7	-26.55	79.6	-985.1	925.8	915.9	9.87	93.788		
2,300.0	2,294.9	2,411.6	2,401.0	5.3	6.1	-26.60	83.6	-972.6	902.2	891.9	10.34	87.292		
2,400.0	2,394.1	2,508.8	2,497.3	5.6	6.4	-26.65	87.7	-960.1	878.6	867.8	10.80	81.331		
2,500.0	2,493.4	2,605.9	2,593.6	5.8	6.7	-26.71	91.7	-947.6	855.0	843.8	11.27	75.847		
2,600.0	2,592.6	2,703.1	2,689.9	6.1	7.0	-26.77	95.8	-935.1	831.5	819.7	11.75	70.787		
2,700.0	2,691.8	2,800.3	2,786.2	6.4	7.3	-26.84	99.8	-922.7	807.9	795.6	12.22	66.108		
2,800.0	2,791.0	2,897.4	2,882.4	6.7	7.6	-26.90	103.9	-910.2	784.3	771.6	12.70	61.769		
2,900.0	2,890.3	2,994.6	2,978.7	7.0	7.9	-26.98	108.0	-897.7	760.7	747.5	13.18	57.737		
3,000.0	2,889.5	3,091.8	3,075.0	7.3	8.3	-27.05	112.0	-885.2	737.1	723.4	13.65	53.982		
3,100.0	3,088.7	3,189.0	3,171.3	7.6	8.6	-27.14	116.1	-872.8	713.5	699.4	14.14	50.476		
3,200.0	3,188.0	3,286.1	3,267.6	7.9	8.9	-27.22	120.1	-860.3	689.9	675.3	14.62	47.198		
3,300.0	3,287.2	3,383.3	3,363.9	8.2	9.2	-27.32	124.2	-847.8	666.3	651.2	15.10	44.126		
3,400.0	3,386.4	3,480.5	3,460.2	8.6	9.5	-27.42	128.2	-835.3	642.8	627.2	15.59	41.242		
3,500.0	3,485.7	3,577.7	3,556.4	8.9	9.9	-27.53	132.3	-822.9	619.2	603.1	16.07	38.529		
3,600.0	3,584.9	3,674.8	3,652.7	9.2	10.2	-27.65	136.3	-810.4	595.6	579.1	16.56	35.974		
3,700.0	3,684.1	3,772.0	3,749.0	9.5	10.5	-27.77	140.4	-797.9	572.0	555.0	17.04	33.563		
3,800.0	3,783.3	3,869.2	3,845.3	9.8	10.8	-27.91	144.4	-785.4	548.5	530.9	17.53	31.285		
3,900.0	3,882.6	3,966.4	3,941.6	10.1	11.2	-28.06	148.5	-773.0	524.9	506.9	18.02	29.130		
4,000.0	3,981.8	4,063.5	4,037.9	10.4	11.5	-28.23	152.5	-760.5	501.3	482.8	18.51	27.087		
4,100.0	4,081.0	4,160.7	4,134.1	10.7	11.8	-28.41	156.6	-748.0	477.8	458.8	19.00	25.149		
4,200.0	4,180.3	4,257.9	4,230.4	11.0	12.1	-28.61	160.6	-735.5	454.2	434.7	19.49	23.307		
4,300.0	4,279.5	4,355.1	4,326.7	11.4	12.5	-28.83	164.7	-723.1	430.7	410.7	19.98	21.556		
4,400.0	4,378.7	4,452.2	4,423.0	11.7	12.8	-29.08	168.7	-710.6	407.1	386.7	20.47	19.888		
4,500.0	4,478.0	4,549.4	4,519.3	12.0	13.1	-29.27	172.8	-698.1	383.8	362.8	20.98	18.295		
4,600.0	4,577.5	4,644.3	4,613.3	12.2	13.4	-29.14	176.7	-685.9	362.7	341.3	21.46	16.899		
4,700.0	4,677.3	4,735.1	4,703.5	12.4	13.7	-28.87	180.1	-675.6	346.2	324.3	21.88	15.820		
4,800.0	4,777.3	4,824.4	4,792.4	12.6	13.9	-28.55	182.5	-668.1	335.6	313.3	22.25	15.081		
4,900.0	4,877.3	4,914.3	4,882.2	12.7	14.0	-89.64	184.1	-663.3	330.1	307.5	22.60	14.604		
5,000.0	4,977.3	5,004.5	4,972.3	12.9	14.2	-89.51	184.8	-661.1	327.7	304.7	22.97	14.269		
5,048.1	5,025.4	5,049.6	5,017.4	13.0	14.2	-89.50	184.8	-661.0	327.5	304.4	23.14	14.152		
5,100.0	5,077.3	5,101.5	5,069.3	13.1	14.3	-89.50	184.8	-661.0	327.5	304.2	23.35	14.029		
5,200.0	5,177.3	5,201.5	5,169.3	13.3	14.5	-89.50	184.8	-661.0	327.5	303.8	23.75	13.791		
5,300.0	5,277.3	5,301.5	5,269.3	13.5	14.7	-89.50	184.8	-661.0	327.5	303.4	24.15	13.560		
5,400.0	5,377.3	5,401.5	5,369.3	13.7	14.8	-89.50	184.8	-661.0	327.5	303.0	24.56	13.336		
5,500.0	5,477.3	5,501.5	5,469.3	13.8	15.0	-89.50	184.8	-661.0	327.5	302.6	24.97	13.119		
5,600.0	5,577.3	5,601.5	5,569.3	14.0	15.2	-89.50	184.8	-661.0	327.5	302.2	25.38	12.907		
5,700.0	5,677.3	5,701.5	5,669.3	14.2	15.3	-89.50	184.8	-661.0	327.5	301.8	25.79	12.702		
5,800.0	5,777.3	5,801.5	5,769.3	14.4	15.5	-89.50	184.8	-661.0	327.5	301.3	26.20	12.502		
5,900.0	5,877.3	5,901.5	5,869.3	14.6	15.7	-89.50	184.8	-661.0	327.5	300.9	26.61	12.308		
6,000.0	5,977.3	6,001.5	5,969.3	14.8	15.9	-89.50	184.8	-661.0	327.5	300.5	27.03	12.120		
6,100.0	6,077.3	6,101.5	6,069.3	15.0	16.1	-89.50	184.8	-661.0	327.5	300.1	27.44	11.937		
6,200.0	6,177.3	6,201.5	6,169.3	15.2	16.2	-89.50	184.8	-661.0	327.5	299.7	27.86	11.758		
6,300.0	6,277.3	6,301.5	6,269.3	15.4	16.4	-89.50	184.8	-661.0	327.5	299.3	28.27	11.585		
6,400.0	6,377.3	6,401.5	6,369.3	15.6	16.6	-89.50	184.8	-661.0	327.5	298.9	28.69	11.416		
6,500.0	6,477.3	6,501.5	6,469.3	15.8	16.8	-89.50	184.8	-661.0	327.5	298.4	29.11	11.252		
6,600.0	6,577.3	6,601.5	6,569.3	16.0	17.0	-89.50	184.8	-661.0	327.5	298.0	29.53	11.092		
6,700.0	6,677.3	6,701.5	6,669.3	16.2	17.2	-89.50	184.8	-661.0	327.5	297.6	29.95	10.936		
6,800.0	6,777.3	6,801.5	6,769.3	16.4	17.3	-89.50	184.8	-661.0	327.5	297.2	30.37	10.784		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
6,900.0	6,877.3	6,901.5	6,869.3	16.6	17.5	-89.50	184.8	-661.0	327.5	296.7	30.80	10.636		
7,000.0	6,977.3	7,001.5	6,969.3	16.8	17.7	-89.52	184.8	-661.0	327.5	296.3	31.22	10.493		
7,054.0	7,031.3	7,055.6	7,023.3	16.9	17.8	-90.00	182.0	-661.0	327.5	296.1	31.42	10.425 CC		
7,100.0	7,077.3	7,101.1	7,068.5	17.0	17.9	-90.92	176.7	-661.0	327.6	296.0	31.58	10.372		
7,200.0	7,177.1	7,198.2	7,163.4	17.2	18.0	86.35	156.6	-661.0	328.2	296.3	31.88	10.296		
7,300.0	7,275.4	7,293.4	7,253.3	17.3	18.1	83.70	125.3	-661.0	329.6	297.5	32.11	10.263		
7,400.0	7,370.5	7,386.9	7,337.1	17.4	18.1	81.19	83.9	-661.0	331.5	299.2	32.31	10.259		
7,500.0	7,460.8	7,478.9	7,414.0	17.4	18.2	78.87	33.5	-661.0	333.9	301.4	32.51	10.271		
7,600.0	7,544.8	7,569.6	7,483.3	17.5	18.4	76.75	-24.9	-661.0	336.6	303.9	32.70	10.293		
7,700.0	7,621.0	7,659.2	7,544.6	17.6	18.5	74.88	-90.2	-661.0	339.4	306.4	32.97	10.296		
7,800.0	7,688.0	7,750.0	7,598.4	17.7	18.8	73.23	-163.3	-661.0	342.2	308.8	33.35	10.260		
7,900.0	7,744.8	7,835.6	7,640.8	18.0	19.1	71.91	-237.6	-661.0	344.7	310.8	33.89	10.170		
8,000.0	7,790.5	7,922.7	7,675.3	18.4	19.6	70.83	-317.5	-661.0	346.8	312.2	34.67	10.005		
8,100.0	7,824.1	8,009.4	7,700.3	19.1	20.2	70.03	-400.4	-661.0	348.5	312.8	35.72	9.757		
8,200.0	7,845.1	8,095.6	7,715.7	19.9	20.9	69.52	-485.3	-661.0	349.6	312.6	37.07	9.432		
8,300.0	7,853.2	8,181.7	7,721.4	20.9	21.7	69.29	-571.2	-661.0	350.2	311.4	38.71	9.045		
8,400.0	7,853.5	8,280.2	7,721.3	22.0	22.8	69.22	-669.6	-661.0	350.3	309.5	40.82	8.582		
8,500.0	7,853.8	8,380.2	7,721.1	23.2	24.0	69.15	-769.6	-661.0	350.5	307.3	43.13	8.125		
8,600.0	7,854.0	8,480.2	7,720.8	24.5	25.3	69.08	-869.6	-661.0	350.6	305.0	45.61	7.687		
8,700.0	7,854.3	8,580.2	7,720.6	25.8	26.7	69.02	-969.6	-661.0	350.8	302.6	48.24	7.273		
8,800.0	7,854.5	8,680.2	7,720.4	27.3	28.1	68.95	-1,069.6	-661.0	351.0	300.0	50.97	6.885		
8,900.0	7,854.8	8,780.2	7,720.2	28.8	29.6	68.88	-1,169.6	-661.0	351.1	297.3	53.81	6.525		
9,000.0	7,855.0	8,880.2	7,720.0	30.3	31.1	68.81	-1,269.6	-661.0	351.3	294.6	56.73	6.192		
9,100.0	7,855.2	8,980.2	7,719.8	31.9	32.7	68.74	-1,369.6	-661.0	351.5	291.7	59.73	5.884		
9,200.0	7,855.5	9,080.2	7,719.6	33.5	34.3	68.67	-1,469.6	-661.0	351.6	288.8	62.78	5.601		
9,300.0	7,855.7	9,180.2	7,719.4	35.2	35.9	68.60	-1,569.6	-661.0	351.8	285.9	65.88	5.339		
9,400.0	7,856.0	9,280.2	7,719.2	36.8	37.6	68.53	-1,669.6	-661.0	351.9	282.9	69.03	5.098		
9,500.0	7,856.2	9,380.2	7,719.0	38.5	39.3	68.46	-1,769.6	-661.0	352.1	279.9	72.22	4.876		
9,600.0	7,856.5	9,480.2	7,718.7	40.2	41.0	68.40	-1,869.6	-661.0	352.3	276.8	75.44	4.670		
9,700.0	7,856.7	9,580.2	7,718.5	42.0	42.7	68.33	-1,969.6	-661.0	352.4	273.8	78.68	4.479		
9,800.0	7,856.9	9,680.2	7,718.3	43.7	44.4	68.26	-2,069.6	-661.0	352.6	270.7	81.95	4.303		
9,900.0	7,857.2	9,780.2	7,718.1	45.5	46.2	68.19	-2,169.6	-661.0	352.8	267.5	85.25	4.138		
10,000.0	7,857.4	9,880.2	7,717.9	47.2	47.9	68.12	-2,269.6	-661.0	353.0	264.4	88.56	3.986		
10,100.0	7,857.7	9,980.2	7,717.7	49.0	49.7	68.05	-2,369.6	-661.0	353.1	261.2	91.88	3.843		
10,200.0	7,857.9	10,080.2	7,717.5	50.8	51.5	67.98	-2,469.6	-661.0	353.3	258.1	95.22	3.710		
10,300.0	7,858.2	10,180.2	7,717.3	52.6	53.3	67.92	-2,569.6	-661.0	353.5	254.9	98.58	3.586		
10,400.0	7,858.4	10,280.2	7,717.1	54.4	55.1	67.85	-2,669.6	-661.0	353.6	251.7	101.94	3.469		
10,500.0	7,858.7	10,380.2	7,716.9	56.2	56.9	67.78	-2,769.6	-661.0	353.8	248.5	105.32	3.359		
10,600.0	7,858.9	10,480.2	7,716.7	58.1	58.7	67.71	-2,869.6	-661.0	354.0	245.3	108.70	3.257		
10,700.0	7,859.1	10,580.2	7,716.4	59.9	60.6	67.64	-2,969.6	-661.0	354.1	242.1	112.09	3.160		
10,800.0	7,859.4	10,680.2	7,716.2	61.7	62.4	67.58	-3,069.6	-661.0	354.3	238.8	115.48	3.068		
10,900.0	7,859.6	10,780.2	7,716.0	63.6	64.2	67.51	-3,169.6	-661.0	354.5	235.6	118.88	2.982		
11,000.0	7,859.9	10,880.2	7,715.8	65.4	66.1	67.44	-3,269.6	-661.0	354.7	232.4	122.29	2.900		
11,100.0	7,860.1	10,980.2	7,715.6	67.2	67.9	67.37	-3,369.6	-661.0	354.8	229.1	125.70	2.823		
11,200.0	7,860.4	11,080.2	7,715.4	69.1	69.7	67.31	-3,469.6	-661.0	355.0	225.9	129.11	2.750		
11,300.0	7,860.6	11,180.2	7,715.2	70.9	71.6	67.24	-3,569.6	-661.0	355.2	222.7	132.53	2.680		
11,400.0	7,860.9	11,280.2	7,715.0	72.8	73.4	67.17	-3,669.6	-661.0	355.4	219.4	135.95	2.614		
11,500.0	7,861.1	11,380.2	7,714.8	74.7	75.3	67.10	-3,769.6	-661.0	355.5	216.2	139.37	2.551		
11,600.0	7,861.3	11,480.2	7,714.6	76.5	77.2	67.04	-3,869.6	-661.0	355.7	212.9	142.80	2.491		
11,700.0	7,861.6	11,580.2	7,714.4	78.4	79.0	66.97	-3,969.6	-661.0	355.9	209.7	146.22	2.434		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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 1N67W32K Pad Sec.32-T1N-R67W - Jacobucci 32K-323 - Wellbore #1 - Plan #1 (7-24-14)				Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
11,800.0	7,861.8	11,680.2	7,714.1	80.3	80.9	66.90	-4,069.6	-661.0	356.1	206.4	149.65	2.379				
11,900.0	7,862.1	11,780.2	7,713.9	82.1	82.8	66.83	-4,169.6	-661.0	356.3	203.2	153.07	2.327				
12,000.0	7,862.3	11,880.2	7,713.7	84.0	84.6	66.77	-4,269.6	-661.0	356.4	199.9	156.50	2.278				
12,100.0	7,862.6	11,980.2	7,713.5	85.9	86.5	66.70	-4,369.6	-661.0	356.6	196.7	159.93	2.230				
12,200.0	7,862.8	12,080.2	7,713.3	87.7	88.4	66.63	-4,469.6	-661.0	356.8	193.4	163.35	2.184				
12,300.0	7,863.1	12,180.2	7,713.1	89.6	90.2	66.57	-4,569.6	-661.0	357.0	190.2	166.78	2.140				
12,400.0	7,863.3	12,280.2	7,712.9	91.5	92.1	66.50	-4,669.6	-661.0	357.2	186.9	170.21	2.098				
12,500.0	7,863.5	12,380.2	7,712.7	93.4	94.0	66.43	-4,769.6	-661.0	357.3	183.7	173.63	2.058				
12,600.0	7,863.8	12,480.2	7,712.5	95.3	95.9	66.37	-4,869.6	-661.0	357.5	180.5	177.06	2.019				
12,700.0	7,864.0	12,580.2	7,712.3	97.1	97.8	66.30	-4,969.6	-661.0	357.7	177.2	180.49	1.982				
12,800.0	7,864.3	12,680.2	7,712.0	99.0	99.6	66.23	-5,069.6	-661.0	357.9	174.0	183.91	1.946				
12,900.0	7,864.5	12,780.2	7,711.8	100.9	101.5	66.17	-5,169.6	-661.0	358.1	170.7	187.33	1.911				
13,000.0	7,864.8	12,880.2	7,711.6	102.8	103.4	66.10	-5,269.6	-661.0	358.2	167.5	190.75	1.878				
13,100.0	7,865.0	12,980.1	7,711.4	104.7	105.3	66.03	-5,369.6	-661.0	358.4	164.3	194.17	1.846				
13,200.0	7,865.3	13,080.1	7,711.2	106.6	107.2	65.97	-5,469.6	-661.0	358.6	161.0	197.59	1.815				
13,300.0	7,865.5	13,180.1	7,711.0	108.5	109.1	65.90	-5,569.6	-661.0	358.8	157.8	201.01	1.785				
13,400.0	7,865.7	13,280.1	7,710.8	110.4	111.0	65.84	-5,669.6	-661.0	359.0	154.6	204.43	1.756				
13,500.0	7,866.0	13,380.1	7,710.6	112.2	112.8	65.77	-5,769.6	-661.0	359.2	151.3	207.84	1.728				
13,600.0	7,866.2	13,480.1	7,710.4	114.1	114.7	65.70	-5,869.6	-661.0	359.4	148.1	211.25	1.701				
13,700.0	7,866.5	13,580.1	7,710.2	116.0	116.6	65.64	-5,969.6	-661.0	359.5	144.9	214.66	1.675				
13,800.0	7,866.7	13,680.1	7,710.0	117.9	118.5	65.57	-6,069.5	-661.0	359.7	141.7	218.07	1.650				
13,900.0	7,867.0	13,780.1	7,709.7	119.8	120.4	65.51	-6,169.5	-661.0	359.9	138.4	221.48	1.625				
14,000.0	7,867.2	13,880.1	7,709.5	121.7	122.3	65.44	-6,269.5	-661.0	360.1	135.2	224.88	1.601				
14,100.0	7,867.5	13,980.1	7,709.3	123.6	124.2	65.37	-6,369.5	-661.0	360.3	132.0	228.29	1.578				
14,200.0	7,867.7	14,080.1	7,709.1	125.5	126.1	65.31	-6,469.5	-661.0	360.5	128.8	231.69	1.556				
14,300.0	7,867.9	14,180.1	7,708.9	127.4	128.0	65.24	-6,569.5	-661.0	360.7	125.6	235.09	1.534				
14,400.0	7,868.2	14,280.1	7,708.7	129.3	129.9	65.18	-6,669.5	-661.0	360.9	122.4	238.48	1.513				
14,500.0	7,868.4	14,380.1	7,708.5	131.2	131.8	65.11	-6,769.5	-661.0	361.1	119.2	241.88	1.493 Level 3				
14,600.0	7,868.7	14,480.1	7,708.3	133.1	133.7	65.05	-6,869.5	-661.0	361.3	116.0	245.27	1.473 Level 3				
14,700.0	7,868.9	14,580.1	7,708.1	135.0	135.6	64.98	-6,969.5	-661.0	361.4	112.8	248.66	1.454 Level 3				
14,731.7	7,869.0	14,611.8	7,708.0	135.6	136.2	64.96	-7,001.2	-661.0	361.5	111.8	249.73	1.448 Level 3, ES, SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	89.95	0.0	30.8	30.8					
100.0	100.0	100.0	100.0	0.1	0.1	89.95	0.0	30.8	30.8	30.6	0.22	137.098		
200.0	200.0	200.0	200.0	0.3	0.3	89.95	0.0	30.8	30.8	30.1	0.67	45.699		
300.0	300.0	300.0	300.0	0.6	0.6	89.95	0.0	30.8	30.8	29.7	1.12	27.420		
400.0	400.0	400.0	400.0	0.8	0.8	89.95	0.0	30.8	30.8	29.2	1.57	19.585		
500.0	500.0	500.0	500.0	1.0	1.0	89.95	0.0	30.8	30.8	28.8	2.02	15.233		
600.0	600.0	600.0	600.0	1.2	1.2	89.95	0.0	30.8	30.8	28.3	2.47	12.463		
700.0	700.0	700.0	700.0	1.5	1.5	89.95	0.0	30.8	30.8	27.9	2.92	10.546		
800.0	800.0	800.0	800.0	1.7	1.7	89.95	0.0	30.8	30.8	27.4	3.37	9.140		
900.0	900.0	900.0	900.0	1.9	1.9	89.95	0.0	30.8	30.8	27.0	3.82	8.065		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.95	0.0	30.8	30.8	26.5	4.27	7.216		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	89.95	0.0	30.8	30.8	26.1	4.72	6.528		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	89.95	0.0	30.8	30.8	25.6	5.17	5.961		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	89.95	0.0	30.8	30.8	25.2	5.62	5.484		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	89.95	0.0	30.8	30.8	24.7	6.07	5.078 CC, ES		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	152.80	0.0	30.8	32.4	25.8	6.51	4.971		
1,600.0	1,599.8	1,599.8	1,599.8	3.5	3.5	156.46	0.0	30.8	37.1	30.2	6.94	5.346		
1,700.0	1,699.5	1,699.5	1,699.5	3.7	3.7	160.82	0.0	30.8	45.2	37.9	7.36	6.144		
1,800.0	1,798.7	1,798.7	1,798.7	3.9	3.9	164.73	0.0	30.8	56.5	48.8	7.79	7.263		
1,900.0	1,898.0	1,898.0	1,898.0	4.2	4.2	167.46	0.0	30.8	68.6	60.3	8.22	8.338		
2,000.0	1,997.2	1,997.2	1,997.2	4.4	4.4	169.36	0.0	30.8	80.7	72.0	8.67	9.314		
2,100.0	2,096.4	2,096.4	2,096.4	4.7	4.6	170.77	0.0	30.8	92.9	83.8	9.11	10.200		
2,200.0	2,195.7	2,195.7	2,195.7	5.0	4.8	171.86	0.0	30.8	105.2	95.6	9.56	11.006		
2,300.0	2,294.9	2,296.7	2,296.7	5.3	5.1	172.02	1.6	30.6	116.7	106.7	10.01	11.662		
2,400.0	2,394.1	2,398.2	2,398.0	5.6	5.3	170.71	6.8	30.0	126.6	116.1	10.46	12.106		
2,500.0	2,493.4	2,499.6	2,499.1	5.8	5.5	168.21	15.6	28.9	135.1	124.2	10.92	12.376		
2,600.0	2,592.6	2,600.2	2,599.0	6.1	5.7	164.80	27.5	27.4	142.6	131.2	11.39	12.526		
2,700.0	2,691.8	2,699.6	2,697.5	6.4	6.0	161.52	40.0	25.9	150.4	138.5	11.87	12.669		
2,800.0	2,791.0	2,798.9	2,796.0	6.7	6.2	158.57	52.5	24.4	158.6	146.2	12.37	12.822		
2,900.0	2,890.3	2,898.3	2,894.6	7.0	6.5	155.91	65.0	22.8	167.2	154.3	12.88	12.980		
3,000.0	2,989.5	2,997.6	2,993.1	7.3	6.7	153.52	77.5	21.3	176.1	162.7	13.40	13.138		
3,100.0	3,088.7	3,096.9	3,091.7	7.6	7.0	151.35	90.0	19.7	185.3	171.3	13.93	13.296		
3,200.0	3,188.0	3,196.3	3,190.2	7.9	7.3	149.40	102.5	18.2	194.7	180.2	14.47	13.450		
3,300.0	3,287.2	3,295.6	3,288.8	8.2	7.5	147.62	115.0	16.7	204.3	189.3	15.02	13.599		
3,400.0	3,386.4	3,395.0	3,387.3	8.6	7.8	146.01	127.5	15.1	214.1	198.5	15.58	13.744		
3,500.0	3,485.7	3,494.3	3,485.9	8.9	8.1	144.53	139.9	13.6	224.1	207.9	16.14	13.883		
3,600.0	3,584.9	3,593.7	3,584.4	9.2	8.4	143.19	152.4	12.0	234.1	217.4	16.70	14.017		
3,700.0	3,684.1	3,693.2	3,683.1	9.5	8.6	142.04	164.6	10.5	244.3	227.1	17.26	14.158		
3,800.0	3,783.3	3,793.0	3,782.5	9.8	8.8	141.65	173.8	9.4	254.5	236.7	17.74	14.342		
3,900.0	3,882.6	3,892.8	3,882.2	10.1	9.0	142.05	179.6	8.7	264.5	246.3	18.19	14.537		
4,000.0	3,981.8	3,992.5	3,981.8	10.4	9.2	143.15	182.0	8.4	274.4	255.8	18.61	14.747		
4,100.0	4,081.0	4,091.7	4,081.0	10.7	9.4	144.63	182.0	8.4	284.4	265.4	19.02	14.959		
4,200.0	4,180.3	4,191.0	4,180.3	11.0	9.6	146.02	182.0	8.4	294.7	275.2	19.44	15.154		
4,300.0	4,279.5	4,290.2	4,279.5	11.4	9.8	147.32	182.0	8.4	305.0	285.2	19.88	15.347		
4,400.0	4,378.7	4,389.4	4,378.7	11.7	10.0	148.53	182.0	8.4	315.5	295.2	20.31	15.538		
4,500.0	4,478.0	4,488.7	4,478.0	12.0	10.2	149.68	182.0	8.4	326.0	305.3	20.74	15.718		
4,600.0	4,577.5	4,588.2	4,577.5	12.2	10.4	150.59	182.0	8.4	334.3	313.1	21.15	15.804		
4,700.0	4,677.3	4,688.0	4,677.3	12.4	10.7	151.14	182.0	8.4	339.5	318.0	21.54	15.760		
4,800.0	4,777.3	4,788.0	4,777.3	12.6	10.9	151.36	182.0	8.4	341.8	319.9	21.92	15.592		
4,900.0	4,877.3	4,888.0	4,877.3	12.7	11.1	90.00	182.0	8.4	341.9	319.5	22.31	15.321		
5,000.0	4,977.3	4,988.0	4,977.3	12.9	11.3	90.00	182.0	8.4	341.9	319.1	22.73	15.039		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
5,100.0	5,077.3	5,088.0	5,077.3	13.1	11.5	90.00	182.0	8.4	341.9	318.7	23.15	14.768			
5,200.0	5,177.3	5,188.0	5,177.3	13.3	11.7	90.00	182.0	8.4	341.9	318.3	23.57	14.505			
5,300.0	5,277.3	5,288.0	5,277.3	13.5	11.9	90.00	182.0	8.4	341.9	317.9	23.99	14.251			
5,400.0	5,377.3	5,388.0	5,377.3	13.7	12.2	90.00	182.0	8.4	341.9	317.4	24.41	14.004			
5,500.0	5,477.3	5,488.0	5,477.3	13.8	12.4	90.00	182.0	8.4	341.9	317.0	24.83	13.766			
5,600.0	5,577.3	5,588.0	5,577.3	14.0	12.6	90.00	182.0	8.4	341.9	316.6	25.26	13.535			
5,700.0	5,677.3	5,688.0	5,677.3	14.2	12.8	90.00	182.0	8.4	341.9	316.2	25.68	13.312			
5,800.0	5,777.3	5,788.0	5,777.3	14.4	13.0	90.00	182.0	8.4	341.9	315.7	26.11	13.095			
5,900.0	5,877.3	5,888.0	5,877.3	14.6	13.2	90.00	182.0	8.4	341.9	315.3	26.53	12.885			
6,000.0	5,977.3	5,988.0	5,977.3	14.8	13.5	90.00	182.0	8.4	341.9	314.9	26.96	12.681			
6,100.0	6,077.3	6,088.0	6,077.3	15.0	13.7	90.00	182.0	8.4	341.9	314.5	27.39	12.483			
6,200.0	6,177.3	6,188.0	6,177.3	15.2	13.9	90.00	182.0	8.4	341.9	314.0	27.81	12.291			
6,300.0	6,277.3	6,288.0	6,277.3	15.4	14.1	90.00	182.0	8.4	341.9	313.6	28.24	12.104			
6,400.0	6,377.3	6,388.0	6,377.3	15.6	14.3	90.00	182.0	8.4	341.9	313.2	28.67	11.923			
6,500.0	6,477.3	6,488.0	6,477.3	15.8	14.5	90.00	182.0	8.4	341.9	312.8	29.10	11.747			
6,600.0	6,577.3	6,588.0	6,577.3	16.0	14.8	90.00	182.0	8.4	341.9	312.3	29.53	11.575			
6,700.0	6,677.3	6,688.0	6,677.3	16.2	15.0	90.00	182.0	8.4	341.9	311.9	29.96	11.409			
6,800.0	6,777.3	6,788.0	6,777.3	16.4	15.2	90.00	182.0	8.4	341.9	311.5	30.40	11.247			
6,900.0	6,877.3	6,888.0	6,877.3	16.6	15.4	90.00	182.0	8.4	341.9	311.0	30.83	11.089			
6,924.4	6,901.7	6,912.4	6,901.7	16.6	15.5	90.09	181.5	8.4	341.9	310.9	30.92	11.057			
7,000.0	6,977.3	6,987.3	6,976.3	16.8	15.6	91.18	174.9	8.4	341.9	310.8	31.16	10.973			
7,100.0	7,077.3	7,083.3	7,070.3	17.0	15.7	94.35	156.0	8.4	342.9	311.5	31.41	10.917			
7,200.0	7,177.1	7,174.8	7,157.1	17.2	15.7	-81.38	127.1	8.4	346.1	314.5	31.57	10.962			
7,300.0	7,275.4	7,263.7	7,237.5	17.3	15.8	-77.32	89.2	8.4	351.0	319.3	31.66	11.084			
7,400.0	7,370.5	7,350.0	7,310.8	17.4	15.9	-73.60	43.8	8.4	357.2	325.5	31.72	11.262			
7,500.0	7,460.8	7,435.1	7,377.7	17.4	16.0	-70.22	-8.8	8.4	364.3	332.5	31.74	11.478			
7,600.0	7,544.8	7,518.2	7,436.9	17.5	16.2	-67.25	-67.0	8.4	371.7	340.0	31.74	11.714			
7,700.0	7,621.0	7,600.0	7,488.7	17.6	16.5	-64.69	-130.2	8.4	379.2	347.4	31.74	11.946			
7,800.0	7,688.0	7,680.6	7,532.9	17.7	16.8	-62.53	-197.7	8.4	386.1	354.3	31.81	12.140			
7,900.0	7,744.8	7,760.4	7,569.3	18.0	17.3	-60.78	-268.5	8.4	392.3	360.3	31.99	12.264			
8,000.0	7,790.5	7,839.4	7,597.9	18.4	17.8	-59.42	-342.1	8.4	397.5	365.1	32.36	12.281			
8,100.0	7,824.1	7,917.8	7,618.7	19.1	18.5	-58.45	-417.8	8.4	401.4	368.4	32.99	12.165			
8,200.0	7,845.1	8,000.0	7,632.0	19.9	19.2	-57.83	-498.8	8.4	403.9	369.9	33.95	11.896			
8,300.0	7,853.2	8,073.9	7,636.5	20.9	20.0	-57.62	-572.5	8.4	404.8	369.6	35.17	11.510			
8,400.0	7,853.5	8,170.4	7,636.2	22.0	21.1	-57.56	-669.1	8.4	405.1	368.1	37.03	10.941			
8,500.0	7,853.8	8,270.4	7,635.8	23.2	22.4	-57.48	-769.1	8.4	405.4	366.3	39.11	10.366			
8,600.0	7,854.0	8,370.4	7,635.5	24.5	23.7	-57.41	-869.1	8.4	405.7	364.4	41.35	9.812			
8,700.0	7,854.3	8,470.4	7,635.1	25.8	25.1	-57.34	-969.1	8.4	406.1	362.3	43.72	9.287			
8,800.0	7,854.5	8,570.4	7,634.7	27.3	26.6	-57.27	-1,069.1	8.4	406.4	360.2	46.21	8.795			
8,900.0	7,854.8	8,670.4	7,634.4	28.8	28.1	-57.19	-1,169.1	8.4	406.7	357.9	48.79	8.337			
9,000.0	7,855.0	8,770.4	7,634.0	30.3	29.7	-57.12	-1,269.1	8.4	407.1	355.6	51.44	7.913			
9,100.0	7,855.2	8,870.4	7,633.6	31.9	31.3	-57.05	-1,369.1	8.4	407.4	353.2	54.16	7.522			
9,200.0	7,855.5	8,970.4	7,633.3	33.5	33.0	-56.98	-1,469.1	8.4	407.7	350.8	56.94	7.160			
9,300.0	7,855.7	9,070.4	7,632.9	35.2	34.6	-56.90	-1,569.1	8.4	408.1	348.3	59.77	6.828			
9,400.0	7,856.0	9,170.4	7,632.5	36.8	36.3	-56.83	-1,669.1	8.4	408.4	345.8	62.63	6.521			
9,500.0	7,856.2	9,270.4	7,632.2	38.5	38.0	-56.76	-1,769.1	8.4	408.7	343.2	65.53	6.237			
9,600.0	7,856.5	9,370.4	7,631.8	40.2	39.8	-56.69	-1,869.0	8.4	409.1	340.6	68.46	5.975			
9,700.0	7,856.7	9,470.4	7,631.4	42.0	41.5	-56.62	-1,969.0	8.4	409.4	338.0	71.41	5.733			
9,800.0	7,856.9	9,570.4	7,631.1	43.7	43.3	-56.55	-2,069.0	8.4	409.7	335.3	74.39	5.508			
9,900.0	7,857.2	9,670.4	7,630.7	45.5	45.1	-56.48	-2,169.0	8.4	410.1	332.7	77.38	5.299			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
10,000.0	7,857.4	9,770.4	7,630.3	47.2	46.8	-56.40	-2,269.0	8.4	410.4	330.0	80.39	5.105	
10,100.0	7,857.7	9,870.4	7,630.0	49.0	48.6	-56.33	-2,369.0	8.4	410.7	327.3	83.41	4.924	
10,200.0	7,857.9	9,970.4	7,629.6	50.8	50.5	-56.26	-2,469.0	8.4	411.1	324.6	86.45	4.755	
10,300.0	7,858.2	10,070.4	7,629.2	52.6	52.3	-56.19	-2,569.0	8.4	411.4	321.9	89.49	4.597	
10,400.0	7,858.4	10,170.4	7,628.9	54.4	54.1	-56.12	-2,669.0	8.4	411.8	319.2	92.54	4.449	
10,500.0	7,858.7	10,270.4	7,628.5	56.2	55.9	-56.05	-2,769.0	8.4	412.1	316.5	95.60	4.311	
10,600.0	7,858.9	10,370.4	7,628.1	58.1	57.7	-55.98	-2,869.0	8.4	412.4	313.8	98.67	4.180	
10,700.0	7,859.1	10,470.4	7,627.8	59.9	59.6	-55.91	-2,969.0	8.4	412.8	311.0	101.74	4.057	
10,800.0	7,859.4	10,570.4	7,627.4	61.7	61.4	-55.84	-3,069.0	8.4	413.1	308.3	104.82	3.941	
10,900.0	7,859.6	10,670.4	7,627.0	63.6	63.3	-55.77	-3,169.0	8.4	413.5	305.6	107.90	3.832	
11,000.0	7,859.9	10,770.4	7,626.7	65.4	65.1	-55.70	-3,269.0	8.4	413.8	302.8	110.98	3.729	
11,100.0	7,860.1	10,870.4	7,626.3	67.2	67.0	-55.63	-3,369.0	8.4	414.2	300.1	114.07	3.631	
11,200.0	7,860.4	10,970.4	7,625.9	69.1	68.8	-55.56	-3,469.0	8.4	414.5	297.4	117.16	3.538	
11,300.0	7,860.6	11,070.4	7,625.6	70.9	70.7	-55.49	-3,569.0	8.4	414.9	294.6	120.25	3.450	
11,400.0	7,860.9	11,170.4	7,625.2	72.8	72.6	-55.42	-3,669.0	8.4	415.2	291.9	123.33	3.366	
11,500.0	7,861.1	11,270.4	7,624.8	74.7	74.4	-55.35	-3,769.0	8.4	415.5	289.1	126.43	3.287	
11,600.0	7,861.3	11,370.4	7,624.5	76.5	76.3	-55.28	-3,869.0	8.4	415.9	286.4	129.52	3.211	
11,700.0	7,861.6	11,470.4	7,624.1	78.4	78.2	-55.21	-3,969.0	8.4	416.2	283.6	132.61	3.139	
11,800.0	7,861.8	11,570.4	7,623.7	80.3	80.0	-55.14	-4,069.0	8.4	416.6	280.9	135.70	3.070	
11,900.0	7,862.1	11,670.4	7,623.4	82.1	81.9	-55.08	-4,169.0	8.4	416.9	278.2	138.78	3.004	
12,000.0	7,862.3	11,770.4	7,623.0	84.0	83.8	-55.01	-4,269.0	8.4	417.3	275.4	141.87	2.941	
12,100.0	7,862.6	11,870.4	7,622.6	85.9	85.7	-54.94	-4,369.0	8.4	417.6	272.7	144.96	2.881	
12,200.0	7,862.8	11,970.4	7,622.3	87.7	87.6	-54.87	-4,469.0	8.4	418.0	270.0	148.04	2.823	
12,300.0	7,863.1	12,070.4	7,621.9	89.6	89.4	-54.80	-4,569.0	8.4	418.3	267.2	151.13	2.768	
12,400.0	7,863.3	12,170.4	7,621.5	91.5	91.3	-54.73	-4,669.0	8.4	418.7	264.5	154.21	2.715	
12,500.0	7,863.5	12,270.3	7,621.2	93.4	93.2	-54.66	-4,769.0	8.4	419.1	261.8	157.29	2.664	
12,600.0	7,863.8	12,370.3	7,620.8	95.3	95.1	-54.60	-4,869.0	8.4	419.4	259.0	160.37	2.615	
12,700.0	7,864.0	12,470.3	7,620.4	97.1	97.0	-54.53	-4,969.0	8.4	419.8	256.3	163.44	2.568	
12,800.0	7,864.3	12,570.3	7,620.1	99.0	98.9	-54.46	-5,069.0	8.4	420.1	253.6	166.52	2.523	
12,900.0	7,864.5	12,670.3	7,619.7	100.9	100.8	-54.39	-5,169.0	8.4	420.5	250.9	169.59	2.479	
13,000.0	7,864.8	12,770.3	7,619.4	102.8	102.6	-54.33	-5,269.0	8.4	420.8	248.2	172.66	2.437	
13,100.0	7,865.0	12,870.3	7,619.0	104.7	104.5	-54.26	-5,369.0	8.4	421.2	245.5	175.72	2.397	
13,200.0	7,865.3	12,970.3	7,618.6	106.6	106.4	-54.19	-5,469.0	8.4	421.5	242.8	178.79	2.358	
13,300.0	7,865.5	13,070.3	7,618.3	108.5	108.3	-54.12	-5,569.0	8.4	421.9	240.0	181.85	2.320	
13,400.0	7,865.7	13,170.3	7,617.9	110.4	110.2	-54.06	-5,669.0	8.4	422.3	237.3	184.91	2.284	
13,500.0	7,866.0	13,270.3	7,617.5	112.2	112.1	-53.99	-5,769.0	8.4	422.6	234.7	187.96	2.248	
13,600.0	7,866.2	13,370.3	7,617.2	114.1	114.0	-53.92	-5,868.9	8.4	423.0	232.0	191.01	2.214	
13,700.0	7,866.5	13,470.3	7,616.8	116.0	115.9	-53.86	-5,968.9	8.4	423.3	229.3	194.06	2.181	
13,800.0	7,866.7	13,570.3	7,616.4	117.9	117.8	-53.79	-6,068.9	8.4	423.7	226.6	197.11	2.150	
13,900.0	7,867.0	13,670.3	7,616.1	119.8	119.7	-53.72	-6,168.9	8.4	424.1	223.9	200.15	2.119	
14,000.0	7,867.2	13,770.3	7,615.7	121.7	121.6	-53.66	-6,268.9	8.4	424.4	221.2	203.19	2.089	
14,100.0	7,867.5	13,870.3	7,615.3	123.6	123.5	-53.59	-6,368.9	8.4	424.8	218.6	206.23	2.060	
14,200.0	7,867.7	13,970.3	7,615.0	125.5	125.4	-53.52	-6,468.9	8.4	425.1	215.9	209.26	2.032	
14,300.0	7,867.9	14,070.3	7,614.6	127.4	127.3	-53.46	-6,568.9	8.4	425.5	213.2	212.29	2.004	
14,400.0	7,868.2	14,170.3	7,614.2	129.3	129.2	-53.39	-6,668.9	8.4	425.9	210.6	215.32	1.978	
14,500.0	7,868.4	14,270.3	7,613.9	131.2	131.1	-53.32	-6,768.9	8.4	426.2	207.9	218.34	1.952	
14,600.0	7,868.7	14,370.3	7,613.5	133.1	133.0	-53.26	-6,868.9	8.4	426.6	205.2	221.36	1.927	
14,700.0	7,868.9	14,470.3	7,613.1	135.0	134.9	-53.19	-6,968.9	8.4	427.0	202.6	224.37	1.903	
14,731.7	7,869.0	14,502.0	7,613.0	135.6	135.5	-53.17	-7,000.6	8.4	427.1	201.8	225.33	1.895 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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													Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
							+N/-S (ft)	+E/-W (ft)							
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	61.6	61.6						
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	61.6	61.6	61.4	0.22	274.195			
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	61.6	61.6	61.0	0.67	91.398			
300.0	300.0	300.0	300.0	0.6	0.6	89.99	0.0	61.6	61.6	60.5	1.12	54.839			
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	61.6	61.6	60.1	1.57	39.171			
500.0	500.0	500.0	500.0	1.0	1.0	89.99	0.0	61.6	61.6	59.6	2.02	30.466			
600.0	600.0	600.0	600.0	1.2	1.2	89.99	0.0	61.6	61.6	59.2	2.47	24.927			
700.0	700.0	700.0	700.0	1.5	1.5	89.99	0.0	61.6	61.6	58.7	2.92	21.092			
800.0	800.0	800.0	800.0	1.7	1.7	89.99	0.0	61.6	61.6	58.3	3.37	18.280			
900.0	900.0	900.0	900.0	1.9	1.9	89.99	0.0	61.6	61.6	57.8	3.82	16.129			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.99	0.0	61.6	61.6	57.4	4.27	14.431			
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	89.99	0.0	61.6	61.6	56.9	4.72	13.057			
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	89.99	0.0	61.6	61.6	56.5	5.17	11.922			
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	89.99	0.0	61.6	61.6	56.0	5.62	10.968			
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	89.99	0.0	61.6	61.6	55.6	6.07	10.155 CC, ES			
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	152.11	0.0	61.6	63.2	56.7	6.51	9.705			
1,600.0	1,599.8	1,599.8	1,599.8	3.5	3.5	154.13	0.0	61.6	67.8	60.9	6.94	9.778			
1,700.0	1,699.5	1,697.5	1,697.4	3.7	3.7	156.07	1.0	63.0	77.1	69.7	7.35	10.482			
1,800.0	1,798.7	1,794.2	1,794.1	3.9	3.9	156.95	3.8	67.0	91.8	84.0	7.77	11.815			
1,900.0	1,898.0	1,890.1	1,889.6	4.2	4.1	156.60	8.5	73.6	109.5	101.3	8.20	13.356			
2,000.0	1,997.2	1,986.1	1,984.9	4.4	4.3	155.45	14.9	82.7	129.6	121.0	8.64	15.002			
2,100.0	2,096.4	2,083.9	2,082.0	4.7	4.6	154.42	21.8	92.5	150.3	141.2	9.08	16.543			
2,200.0	2,195.7	2,181.7	2,179.0	5.0	4.8	153.64	28.8	102.3	171.0	161.5	9.54	17.931			
2,300.0	2,294.9	2,279.5	2,276.1	5.3	5.1	153.03	35.7	112.2	191.8	181.8	10.00	19.184			
2,400.0	2,394.1	2,377.3	2,373.2	5.6	5.3	152.54	42.6	122.0	212.5	202.1	10.46	20.316			
2,500.0	2,493.4	2,475.1	2,470.2	5.8	5.6	152.13	49.6	131.8	233.3	222.4	10.93	21.347			
2,600.0	2,592.6	2,572.9	2,567.3	6.1	5.9	151.79	56.5	141.7	254.1	242.7	11.40	22.284			
2,700.0	2,691.8	2,670.7	2,664.4	6.4	6.2	151.51	63.4	151.5	274.9	263.0	11.88	23.141			
2,800.0	2,791.0	2,768.5	2,761.4	6.7	6.4	151.26	70.4	161.3	295.7	283.3	12.36	23.925			
2,900.0	2,890.3	2,866.3	2,858.5	7.0	6.7	151.05	77.3	171.1	316.5	303.7	12.84	24.646			
3,000.0	2,989.5	2,964.1	2,955.5	7.3	7.0	150.86	84.3	181.0	337.3	324.0	13.33	25.310			
3,100.0	3,088.7	3,061.9	3,052.6	7.6	7.3	150.69	91.2	190.8	358.1	344.3	13.81	25.923			
3,200.0	3,188.0	3,159.7	3,149.7	7.9	7.6	150.54	98.1	200.6	378.9	364.6	14.30	26.491			
3,300.0	3,287.2	3,257.5	3,246.7	8.2	7.9	150.41	105.1	210.4	399.7	385.0	14.80	27.018			
3,400.0	3,386.4	3,355.3	3,343.8	8.6	8.2	150.29	112.0	220.3	420.6	405.3	15.29	27.508			
3,500.0	3,485.7	3,453.1	3,440.9	8.9	8.5	150.18	118.9	230.1	441.4	425.6	15.78	27.965			
3,600.0	3,584.9	3,550.9	3,537.9	9.2	8.7	150.09	125.9	239.9	462.2	445.9	16.28	28.392			
3,700.0	3,684.1	3,648.7	3,635.0	9.5	9.0	150.00	132.8	249.8	483.0	466.3	16.78	28.792			
3,800.0	3,783.3	3,746.6	3,732.0	9.8	9.3	149.91	139.8	259.6	503.9	486.6	17.28	29.166			
3,900.0	3,882.6	3,844.4	3,829.1	10.1	9.6	149.84	146.7	269.4	524.7	506.9	17.77	29.518			
4,000.0	3,981.8	3,942.2	3,926.2	10.4	9.9	149.77	153.6	279.2	545.5	527.2	18.28	29.849			
4,100.0	4,081.0	4,040.0	4,023.2	10.7	10.2	149.70	160.6	289.1	566.3	547.6	18.78	30.161			
4,200.0	4,180.3	4,137.8	4,120.3	11.0	10.5	149.64	167.5	298.9	587.2	567.9	19.28	30.456			
4,300.0	4,279.5	4,250.6	4,232.4	11.4	10.8	149.65	174.8	309.2	607.1	587.3	19.78	30.688			
4,400.0	4,378.7	4,370.6	4,352.0	11.7	11.1	149.89	179.8	316.3	623.8	603.5	20.27	30.779			
4,500.0	4,478.0	4,491.6	4,473.0	12.0	11.3	150.42	181.9	319.3	636.9	616.2	20.75	30.701			
4,600.0	4,577.5	4,596.1	4,577.5	12.2	11.5	150.93	182.0	319.4	645.3	624.1	21.18	30.473			
4,700.0	4,677.3	4,695.9	4,677.3	12.4	11.7	151.24	182.0	319.4	650.6	629.0	21.59	30.129			
4,800.0	4,777.3	4,795.9	4,777.3	12.6	11.9	151.37	182.0	319.4	652.8	630.8	21.98	29.694			
4,900.0	4,877.3	4,895.9	4,877.3	12.7	12.0	90.00	182.0	319.4	652.9	630.5	22.37	29.180			
5,000.0	4,977.3	4,995.9	4,977.3	12.9	12.2	90.00	182.0	319.4	652.9	630.1	22.78	28.655			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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													Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
5,100.0	5,077.3	5,095.9	5,077.3	13.1	12.4	90.00	182.0	319.4	652.9	629.7	23.20	28.146			
5,200.0	5,177.3	5,195.9	5,177.3	13.3	12.6	90.00	182.0	319.4	652.9	629.3	23.61	27.653			
5,300.0	5,277.3	5,295.9	5,277.3	13.5	12.8	90.00	182.0	319.4	652.9	628.9	24.02	27.176			
5,400.0	5,377.3	5,395.9	5,377.3	13.7	13.0	90.00	182.0	319.4	652.9	628.4	24.44	26.713			
5,500.0	5,477.3	5,495.9	5,477.3	13.8	13.2	90.00	182.0	319.4	652.9	628.0	24.86	26.265			
5,600.0	5,577.3	5,595.9	5,577.3	14.0	13.4	90.00	182.0	319.4	652.9	627.6	25.28	25.831			
5,700.0	5,677.3	5,695.9	5,677.3	14.2	13.6	90.00	182.0	319.4	652.9	627.2	25.69	25.409			
5,800.0	5,777.3	5,795.9	5,777.3	14.4	13.8	90.00	182.0	319.4	652.9	626.8	26.11	25.000			
5,900.0	5,877.3	5,895.9	5,877.3	14.6	14.0	90.00	182.0	319.4	652.9	626.3	26.54	24.604			
6,000.0	5,977.3	5,995.9	5,977.3	14.8	14.2	90.00	182.0	319.4	652.9	625.9	26.96	24.218			
6,100.0	6,077.3	6,095.9	6,077.3	15.0	14.4	90.00	182.0	319.4	652.9	625.5	27.38	23.844			
6,200.0	6,177.3	6,195.9	6,177.3	15.2	14.6	90.00	182.0	319.4	652.9	625.1	27.80	23.481			
6,300.0	6,277.3	6,295.9	6,277.3	15.4	14.8	90.00	182.0	319.4	652.9	624.7	28.23	23.128			
6,400.0	6,377.3	6,395.9	6,377.3	15.6	15.1	90.00	182.0	319.4	652.9	624.2	28.65	22.784			
6,500.0	6,477.3	6,495.9	6,477.3	15.8	15.3	90.00	182.0	319.4	652.9	623.8	29.08	22.451			
6,600.0	6,577.3	6,595.9	6,577.3	16.0	15.5	90.00	182.0	319.4	652.9	623.4	29.51	22.126			
6,700.0	6,677.3	6,695.9	6,677.3	16.2	15.7	90.00	182.0	319.4	652.9	622.9	29.94	21.810			
6,800.0	6,777.3	6,795.9	6,777.3	16.4	15.9	90.00	182.0	319.4	652.9	622.5	30.36	21.502			
6,900.0	6,877.3	6,895.9	6,877.3	16.6	16.1	90.00	182.0	319.4	652.9	622.1	30.79	21.203			
7,000.0	6,977.3	6,995.9	6,977.3	16.8	16.3	90.00	182.0	319.4	652.9	621.7	31.22	20.912			
7,028.7	7,006.0	7,024.6	7,006.0	16.9	16.3	90.04	181.5	319.4	652.9	621.6	31.33	20.839			
7,100.0	7,077.3	7,095.3	7,076.5	17.0	16.4	90.55	175.8	319.4	652.9	621.3	31.58	20.673			
7,200.0	7,177.1	7,192.7	7,172.0	17.2	16.6	-88.23	157.2	319.4	653.2	621.4	31.85	20.510			
7,300.0	7,275.4	7,288.3	7,262.7	17.3	16.6	-87.04	127.3	319.4	653.8	621.7	32.03	20.412			
7,400.0	7,370.5	7,382.4	7,347.8	17.4	16.7	-85.90	87.1	319.4	654.6	622.4	32.17	20.346			
7,500.0	7,460.8	7,475.2	7,426.1	17.4	16.8	-84.84	37.5	319.4	655.6	623.2	32.33	20.279			
7,600.0	7,544.8	7,566.8	7,497.0	17.5	16.9	-83.87	-20.4	319.4	656.7	624.1	32.55	20.175			
7,700.0	7,621.0	7,657.3	7,559.7	17.6	17.0	-83.00	-85.6	319.4	657.8	624.9	32.90	19.995			
7,800.0	7,688.0	7,747.0	7,613.8	17.7	17.2	-82.24	-157.0	319.4	659.0	625.5	33.44	19.708			
7,900.0	7,744.8	7,835.9	7,658.9	18.0	17.6	-81.60	-233.6	319.4	660.0	625.8	34.21	19.291			
8,000.0	7,790.5	7,924.2	7,694.5	18.4	18.1	-81.09	-314.4	319.4	660.9	625.6	35.26	18.745			
8,100.0	7,824.1	8,012.0	7,720.5	19.1	18.8	-80.72	-398.3	319.4	661.5	625.0	36.58	18.085			
8,200.0	7,845.1	8,100.0	7,736.7	19.9	19.6	-80.49	-484.7	319.4	662.0	623.8	38.18	17.338			
8,300.0	7,853.2	8,187.0	7,742.8	20.9	20.4	-80.40	-571.4	319.4	662.2	622.1	40.03	16.542			
8,400.0	7,853.5	8,285.0	7,742.5	22.0	21.6	-80.35	-669.4	319.4	662.3	620.0	42.22	15.685			
8,500.0	7,853.8	8,385.0	7,742.1	23.2	22.8	-80.29	-769.4	319.4	662.4	617.7	44.64	14.837			
8,600.0	7,854.0	8,485.0	7,741.7	24.5	24.1	-80.24	-869.4	319.4	662.5	615.2	47.24	14.023			
8,700.0	7,854.3	8,585.0	7,741.3	25.8	25.5	-80.18	-969.4	319.4	662.6	612.6	49.99	13.254			
8,800.0	7,854.5	8,685.0	7,740.8	27.3	26.9	-80.12	-1,069.4	319.4	662.7	609.8	52.87	12.535			
8,900.0	7,854.8	8,785.0	7,740.4	28.8	28.4	-80.07	-1,169.4	319.4	662.8	607.0	55.85	11.868			
9,000.0	7,855.0	8,885.0	7,740.0	30.3	30.0	-80.01	-1,269.4	319.4	662.9	604.0	58.92	11.251			
9,100.0	7,855.2	8,985.0	7,739.6	31.9	31.6	-79.96	-1,369.4	319.4	663.0	601.0	62.07	10.682			
9,200.0	7,855.5	9,085.0	7,739.2	33.5	33.2	-79.90	-1,469.4	319.4	663.2	597.9	65.28	10.158			
9,300.0	7,855.7	9,185.0	7,738.8	35.2	34.9	-79.84	-1,569.4	319.4	663.3	594.7	68.55	9.675			
9,400.0	7,856.0	9,285.0	7,738.3	36.8	36.6	-79.79	-1,669.4	319.4	663.4	591.5	71.87	9.230			
9,500.0	7,856.2	9,385.0	7,737.9	38.5	38.3	-79.73	-1,769.4	319.4	663.5	588.3	75.23	8.820			
9,600.0	7,856.5	9,485.0	7,737.5	40.2	40.0	-79.67	-1,869.4	319.4	663.6	585.0	78.63	8.440			
9,700.0	7,856.7	9,585.0	7,737.1	42.0	41.7	-79.62	-1,969.4	319.4	663.8	581.7	82.06	8.089			
9,800.0	7,856.9	9,685.0	7,736.7	43.7	43.5	-79.56	-2,069.4	319.4	663.9	578.4	85.51	7.764			
9,900.0	7,857.2	9,785.0	7,736.2	45.5	45.2	-79.50	-2,169.4	319.4	664.0	575.0	88.99	7.462			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
10,000.0	7,857.4	9,885.0	7,735.8	47.2	47.0	-79.45	-2,269.4	319.4	664.1	571.6	92.49	7.181				
10,100.0	7,857.7	9,985.0	7,735.4	49.0	48.8	-79.39	-2,369.4	319.4	664.2	568.2	96.01	6.919				
10,200.0	7,857.9	10,085.0	7,735.0	50.8	50.6	-79.34	-2,469.4	319.4	664.4	564.8	99.54	6.674				
10,300.0	7,858.2	10,185.0	7,734.6	52.6	52.4	-79.28	-2,569.4	319.4	664.5	561.4	103.09	6.446				
10,400.0	7,858.4	10,285.0	7,734.1	54.4	54.2	-79.22	-2,669.4	319.4	664.6	557.9	106.66	6.231				
10,500.0	7,858.7	10,385.0	7,733.7	56.2	56.1	-79.17	-2,769.3	319.4	664.7	554.5	110.23	6.030				
10,600.0	7,858.9	10,485.0	7,733.3	58.1	57.9	-79.11	-2,869.3	319.4	664.9	551.0	113.82	5.842				
10,700.0	7,859.1	10,585.0	7,732.9	59.9	59.7	-79.06	-2,969.3	319.4	665.0	547.6	117.41	5.664				
10,800.0	7,859.4	10,685.0	7,732.5	61.7	61.5	-79.00	-3,069.3	319.4	665.1	544.1	121.01	5.496				
10,900.0	7,859.6	10,785.0	7,732.1	63.6	63.4	-78.94	-3,169.3	319.4	665.2	540.6	124.62	5.338				
11,000.0	7,859.9	10,884.9	7,731.6	65.4	65.2	-78.89	-3,269.3	319.4	665.4	537.1	128.24	5.188				
11,100.0	7,860.1	10,984.9	7,731.2	67.2	67.1	-78.83	-3,369.3	319.4	665.5	533.6	131.87	5.047				
11,200.0	7,860.4	11,084.9	7,730.8	69.1	68.9	-78.77	-3,469.3	319.4	665.6	530.1	135.49	4.913				
11,300.0	7,860.6	11,184.9	7,730.4	70.9	70.8	-78.72	-3,569.3	319.4	665.7	526.6	139.13	4.785				
11,400.0	7,860.9	11,284.9	7,730.0	72.8	72.7	-78.66	-3,669.3	319.4	665.9	523.1	142.77	4.664				
11,500.0	7,861.1	11,384.9	7,729.5	74.7	74.5	-78.61	-3,769.3	319.4	666.0	519.6	146.41	4.549				
11,600.0	7,861.3	11,484.9	7,729.1	76.5	76.4	-78.55	-3,869.3	319.4	666.1	516.1	150.06	4.439				
11,700.0	7,861.6	11,584.9	7,728.7	78.4	78.3	-78.50	-3,969.3	319.4	666.3	512.6	153.71	4.335				
11,800.0	7,861.8	11,684.9	7,728.3	80.3	80.1	-78.44	-4,069.3	319.4	666.4	509.0	157.36	4.235				
11,900.0	7,862.1	11,784.9	7,727.9	82.1	82.0	-78.38	-4,169.3	319.4	666.5	505.5	161.01	4.140				
12,000.0	7,862.3	11,884.9	7,727.4	84.0	83.9	-78.33	-4,269.3	319.4	666.7	502.0	164.67	4.048				
12,100.0	7,862.6	11,984.9	7,727.0	85.9	85.7	-78.27	-4,369.3	319.4	666.8	498.5	168.33	3.961				
12,200.0	7,862.8	12,084.9	7,726.6	87.7	87.6	-78.22	-4,469.3	319.4	666.9	494.9	171.99	3.878				
12,300.0	7,863.1	12,184.9	7,726.2	89.6	89.5	-78.16	-4,569.3	319.4	667.1	491.4	175.66	3.796				
12,400.0	7,863.3	12,284.9	7,725.8	91.5	91.4	-78.10	-4,669.3	319.4	667.2	487.9	179.32	3.721				
12,500.0	7,863.5	12,384.9	7,725.4	93.4	93.3	-78.05	-4,769.3	319.4	667.3	484.4	182.99	3.647				
12,600.0	7,863.8	12,484.9	7,724.9	95.3	95.1	-77.99	-4,869.3	319.4	667.5	480.8	186.65	3.576				
12,700.0	7,864.0	12,584.9	7,724.5	97.1	97.0	-77.94	-4,969.3	319.4	667.6	477.3	190.32	3.508				
12,800.0	7,864.3	12,684.9	7,724.1	99.0	98.9	-77.88	-5,069.3	319.4	667.8	473.8	193.99	3.442				
12,900.0	7,864.5	12,784.9	7,723.7	100.9	100.8	-77.83	-5,169.3	319.4	667.9	470.2	197.66	3.379				
13,000.0	7,864.8	12,884.9	7,723.3	102.8	102.7	-77.77	-5,269.3	319.4	668.0	466.7	201.33	3.318				
13,100.0	7,865.0	12,984.9	7,722.8	104.7	104.6	-77.71	-5,369.3	319.4	668.2	463.2	205.00	3.259				
13,200.0	7,865.3	13,084.9	7,722.4	106.6	106.5	-77.66	-5,469.3	319.4	668.3	459.7	208.67	3.203				
13,300.0	7,865.5	13,184.9	7,722.0	108.5	108.4	-77.60	-5,569.3	319.4	668.5	456.1	212.34	3.148				
13,400.0	7,865.7	13,284.9	7,721.6	110.4	110.3	-77.55	-5,669.3	319.4	668.6	452.6	216.01	3.095				
13,500.0	7,866.0	13,384.9	7,721.2	112.2	112.1	-77.49	-5,769.3	319.4	668.8	449.1	219.68	3.044				
13,600.0	7,866.2	13,484.9	7,720.7	114.1	114.0	-77.44	-5,869.3	319.4	668.9	445.5	223.35	2.995				
13,700.0	7,866.5	13,584.9	7,720.3	116.0	115.9	-77.38	-5,969.2	319.4	669.0	442.0	227.03	2.947				
13,800.0	7,866.7	13,684.9	7,719.9	117.9	117.8	-77.33	-6,069.2	319.4	669.2	438.5	230.70	2.901				
13,900.0	7,867.0	13,784.9	7,719.5	119.8	119.7	-77.27	-6,169.2	319.4	669.3	435.0	234.37	2.856				
14,000.0	7,867.2	13,884.9	7,719.1	121.7	121.6	-77.22	-6,269.2	319.4	669.5	431.4	238.04	2.813				
14,100.0	7,867.5	13,984.9	7,718.6	123.6	123.5	-77.16	-6,369.2	319.4	669.6	427.9	241.71	2.770				
14,200.0	7,867.7	14,084.9	7,718.2	125.5	125.4	-77.11	-6,469.2	319.4	669.8	424.4	245.38	2.730				
14,300.0	7,867.9	14,184.9	7,717.8	127.4	127.3	-77.05	-6,569.2	319.4	669.9	420.9	249.04	2.690				
14,400.0	7,868.2	14,284.9	7,717.4	129.3	129.2	-76.99	-6,669.2	319.4	670.1	417.4	252.71	2.652				
14,500.0	7,868.4	14,384.9	7,717.0	131.2	131.1	-76.94	-6,769.2	319.4	670.2	413.8	256.38	2.614				
14,600.0	7,868.7	14,484.9	7,716.6	133.1	133.0	-76.88	-6,869.2	319.4	670.4	410.3	260.05	2.578				
14,700.0	7,868.9	14,584.9	7,716.1	135.0	134.9	-76.83	-6,969.2	319.4	670.5	406.8	263.71	2.543				
14,731.7	7,869.0	14,616.6	7,716.0	135.6	135.5	-76.81	-7,000.9	319.4	670.6	405.7	264.87	2.532 SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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-423 - Wellbore #1 - Plan #1 (7-25-14)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
							+N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	89.98	0.0	95.2	95.2					
100.0	100.0	100.0	100.0	0.1	0.1	89.98	0.0	95.2	95.2	95.0	0.22	423.756		
200.0	200.0	200.0	200.0	0.3	0.3	89.98	0.0	95.2	95.2	94.6	0.67	141.252		
300.0	300.0	300.0	300.0	0.6	0.6	89.98	0.0	95.2	95.2	94.1	1.12	84.751		
400.0	400.0	400.0	400.0	0.8	0.8	89.98	0.0	95.2	95.2	93.7	1.57	60.537		
500.0	500.0	500.0	500.0	1.0	1.0	89.98	0.0	95.2	95.2	93.2	2.02	47.084		
600.0	600.0	600.0	600.0	1.2	1.2	89.98	0.0	95.2	95.2	92.8	2.47	38.523		
700.0	700.0	700.0	700.0	1.5	1.5	89.98	0.0	95.2	95.2	92.3	2.92	32.597		
800.0	800.0	800.0	800.0	1.7	1.7	89.98	0.0	95.2	95.2	91.9	3.37	28.250		
900.0	900.0	900.0	900.0	1.9	1.9	89.98	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	89.98	0.0	95.2	95.2	91.0	4.27	22.303	CC, ES	
1,100.0	1,100.0	1,096.9	1,096.9	2.4	2.3	89.69	0.5	96.8	96.9	92.2	4.70	20.589		
1,200.0	1,200.0	1,193.6	1,193.4	2.6	2.6	88.85	2.0	101.5	101.7	96.6	5.13	19.809		
1,300.0	1,300.0	1,289.8	1,289.3	2.8	2.8	87.63	4.5	109.2	109.8	104.2	5.57	19.704		
1,400.0	1,400.0	1,385.4	1,384.2	3.0	3.0	86.20	8.0	119.9	121.2	115.2	6.03	20.111		
1,500.0	1,500.0	1,483.5	1,481.4	3.3	3.3	146.40	12.1	132.9	136.2	129.8	6.44	21.164		
1,600.0	1,599.8	1,581.8	1,578.7	3.5	3.5	146.11	16.4	146.1	154.2	147.3	6.86	22.473		
1,700.0	1,699.5	1,679.6	1,675.6	3.7	3.8	146.46	20.6	159.1	175.0	167.8	7.28	24.030		
1,800.0	1,798.7	1,776.8	1,771.8	3.9	4.1	147.28	24.7	172.1	198.5	190.8	7.71	25.733		
1,900.0	1,898.0	1,873.8	1,867.9	4.2	4.4	148.12	28.9	185.1	222.4	214.2	8.16	27.265		
2,000.0	1,997.2	1,970.9	1,964.0	4.4	4.7	148.79	33.1	198.0	246.3	237.7	8.61	28.626		
2,100.0	2,096.4	2,067.9	2,060.0	4.7	5.0	149.35	37.2	211.0	270.3	261.3	9.06	29.835		
2,200.0	2,195.7	2,165.0	2,156.1	5.0	5.3	149.82	41.4	224.0	294.3	284.8	9.52	30.916		
2,300.0	2,294.9	2,262.0	2,252.2	5.3	5.6	150.21	45.6	236.9	318.3	308.4	9.98	31.885		
2,400.0	2,394.1	2,359.1	2,348.3	5.6	5.9	150.55	49.8	249.9	342.4	331.9	10.45	32.759		
2,500.0	2,493.4	2,456.2	2,444.4	5.8	6.3	150.85	53.9	262.8	366.4	355.5	10.92	33.550		
2,600.0	2,592.6	2,553.2	2,540.5	6.1	6.6	151.11	58.1	275.8	390.4	379.1	11.39	34.268		
2,700.0	2,691.8	2,650.3	2,636.6	6.4	6.9	151.33	62.3	288.8	414.5	402.6	11.87	34.923		
2,800.0	2,791.0	2,747.3	2,732.7	6.7	7.2	151.54	66.4	301.7	438.6	426.2	12.35	35.522		
2,900.0	2,890.3	2,844.4	2,828.8	7.0	7.5	151.72	70.6	314.7	462.6	449.8	12.82	36.072		
3,000.0	2,889.5	2,841.4	2,824.9	7.3	7.9	151.89	74.8	327.7	486.7	473.4	13.31	36.578		
3,100.0	3,088.7	3,038.5	3,021.0	7.6	8.2	152.04	78.9	340.6	510.8	497.0	13.79	37.045		
3,200.0	3,188.0	3,135.5	3,117.1	7.9	8.5	152.17	83.1	353.6	534.8	520.6	14.27	37.478		
3,300.0	3,287.2	3,232.6	3,213.1	8.2	8.8	152.30	87.3	366.5	558.9	544.2	14.76	37.879		
3,400.0	3,386.4	3,329.6	3,309.2	8.6	9.2	152.41	91.4	379.5	583.0	567.7	15.24	38.252		
3,500.0	3,485.7	3,426.7	3,405.3	8.9	9.5	152.51	95.6	392.5	607.1	591.3	15.73	38.600		
3,600.0	3,584.9	3,523.7	3,501.4	9.2	9.8	152.61	99.8	405.4	631.2	614.9	16.21	38.924		
3,700.0	3,684.1	3,620.8	3,597.5	9.5	10.2	152.70	103.9	418.4	655.2	638.5	16.70	39.229		
3,800.0	3,783.3	3,717.8	3,693.6	9.8	10.5	152.78	108.1	431.4	679.3	662.1	17.19	39.514		
3,900.0	3,882.6	3,814.9	3,789.7	10.1	10.8	152.86	112.3	444.3	703.4	685.7	17.68	39.782		
4,000.0	3,981.8	3,911.9	3,885.8	10.4	11.1	152.93	116.4	457.3	727.5	709.3	18.17	40.034		
4,100.0	4,081.0	4,009.0	3,981.9	10.7	11.5	153.00	120.6	470.2	751.6	732.9	18.66	40.271		
4,200.0	4,180.3	4,106.0	4,078.0	11.0	11.8	153.06	124.8	483.2	775.7	756.5	19.15	40.496		
4,300.0	4,279.5	4,203.1	4,174.1	11.4	12.1	153.12	128.9	496.2	799.8	780.1	19.65	40.708		
4,400.0	4,378.7	4,300.1	4,270.2	11.7	12.5	153.18	133.1	509.1	823.9	803.7	20.14	40.909		
4,500.0	4,478.0	4,397.2	4,366.3	12.0	12.8	153.30	137.3	522.1	847.8	827.1	20.65	41.063		
4,600.0	4,577.5	4,494.9	4,463.0	12.2	13.1	153.46	141.5	535.1	869.4	848.2	21.14	41.117		
4,700.0	4,677.3	4,593.1	4,560.2	12.4	13.5	153.49	145.7	548.3	887.9	866.2	21.62	41.075		
4,800.0	4,777.3	4,691.8	4,658.0	12.6	13.8	153.40	149.9	561.4	903.3	881.2	22.06	40.944		
4,900.0	4,877.3	4,790.8	4,756.0	12.7	14.1	91.75	154.2	574.7	916.6	894.1	22.50	40.743		
5,000.0	4,977.3	4,889.9	4,854.0	12.9	14.5	91.47	158.4	587.9	929.9	906.9	22.95	40.519		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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													Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,100.0	5,077.3	4,988.9	4,952.1	13.1	14.8	91.18	162.7	601.1	943.1	919.7	23.40	40.304			
5,200.0	5,177.3	5,087.9	5,050.1	13.3	15.2	90.91	166.9	614.3	956.4	932.6	23.85	40.097			
5,300.0	5,277.3	5,186.9	5,148.1	13.5	15.5	90.64	171.2	627.6	969.7	945.4	24.30	39.899			
5,400.0	5,377.3	5,309.4	5,269.6	13.7	15.9	90.34	176.2	643.1	982.5	957.7	24.79	39.626			
5,500.0	5,477.3	5,457.5	5,417.1	13.8	16.2	90.10	180.2	655.7	991.0	965.7	25.28	39.200			
5,600.0	5,577.3	5,606.7	5,566.1	14.0	16.5	90.00	182.0	661.1	994.6	968.9	25.75	38.623			
5,700.0	5,677.3	5,717.9	5,677.3	14.2	16.6	90.00	182.0	661.3	994.7	968.6	26.16	38.022			
5,800.0	5,777.3	5,817.9	5,777.3	14.4	16.8	90.00	182.0	661.3	994.7	968.2	26.57	37.444			
5,900.0	5,877.3	5,917.9	5,877.3	14.6	16.9	90.00	182.0	661.3	994.7	967.8	26.97	36.881			
6,000.0	5,977.3	6,017.9	5,977.3	14.8	17.1	90.00	182.0	661.3	994.7	967.4	27.38	36.334			
6,100.0	6,077.3	6,117.9	6,077.3	15.0	17.3	90.00	182.0	661.3	994.7	966.9	27.79	35.800			
6,200.0	6,177.3	6,217.9	6,177.3	15.2	17.4	90.00	182.0	661.3	994.7	966.5	28.19	35.281			
6,300.0	6,277.3	6,317.9	6,277.3	15.4	17.6	90.00	182.0	661.3	994.7	966.1	28.61	34.775			
6,400.0	6,377.3	6,417.9	6,377.3	15.6	17.8	90.00	182.0	661.3	994.7	965.7	29.02	34.282			
6,500.0	6,477.3	6,517.9	6,477.3	15.8	17.9	90.00	182.0	661.3	994.7	965.3	29.43	33.801			
6,600.0	6,577.3	6,617.9	6,577.3	16.0	18.1	90.00	182.0	661.3	994.7	964.9	29.84	33.333			
6,700.0	6,677.3	6,717.9	6,677.3	16.2	18.3	90.00	182.0	661.3	994.7	964.5	30.26	32.876			
6,800.0	6,777.3	6,817.9	6,777.3	16.4	18.5	90.00	182.0	661.3	994.7	964.1	30.67	32.430			
6,900.0	6,877.3	6,917.9	6,877.3	16.6	18.6	90.00	182.0	661.3	994.7	963.6	31.09	31.996			
7,000.0	6,977.3	7,017.9	6,977.3	16.8	18.8	90.00	182.0	661.3	994.7	963.2	31.51	31.572			
7,064.4	7,041.7	7,082.3	7,041.7	16.9	18.9	90.00	182.0	661.3	994.7	963.0	31.78	31.304			
7,100.0	7,077.3	7,117.9	7,077.3	17.0	19.0	90.01	181.9	661.3	994.7	962.8	31.92	31.162			
7,200.0	7,177.1	7,217.6	7,176.5	17.2	19.1	-89.79	173.3	661.3	994.7	962.5	32.24	30.853			
7,300.0	7,275.4	7,316.8	7,273.4	17.3	19.2	-89.58	152.0	661.3	994.8	962.3	32.46	30.643			
7,400.0	7,370.5	7,415.6	7,366.2	17.4	19.3	-89.38	118.5	661.3	994.8	962.2	32.63	30.486			
7,500.0	7,460.8	7,513.9	7,453.6	17.4	19.4	-89.19	73.5	661.3	994.8	962.0	32.79	30.335			
7,600.0	7,544.8	7,611.9	7,534.2	17.5	19.4	-89.02	18.0	661.3	994.9	961.9	33.02	30.133			
7,700.0	7,621.0	7,709.5	7,606.8	17.6	19.5	-88.86	-47.2	661.3	994.9	961.6	33.37	29.817			
7,800.0	7,688.0	7,806.7	7,670.3	17.7	19.7	-88.72	-120.8	661.3	995.0	961.1	33.92	29.337			
7,900.0	7,744.8	7,903.8	7,723.8	18.0	19.9	-88.60	-201.7	661.3	995.0	960.3	34.72	28.658			
8,000.0	7,790.5	8,000.0	7,766.3	18.4	20.3	-88.51	-287.9	661.3	995.1	959.3	35.82	27.782			
8,100.0	7,824.1	8,097.2	7,797.9	19.1	20.8	-88.44	-379.8	661.3	995.1	957.9	37.23	26.726			
8,200.0	7,845.1	8,193.7	7,817.5	19.9	21.5	-88.40	-474.2	661.3	995.1	956.2	38.94	25.553			
8,300.0	7,853.2	8,290.2	7,825.1	20.9	22.4	-88.38	-570.3	661.3	995.1	954.2	40.91	24.323			
8,400.0	7,853.5	8,390.0	7,825.8	22.0	23.4	-88.40	-670.1	661.3	995.1	952.0	43.14	23.066			
8,500.0	7,853.8	8,490.0	7,826.5	23.2	24.5	-88.43	-770.1	661.3	995.1	949.5	45.58	21.831			
8,600.0	7,854.0	8,590.0	7,827.2	24.5	25.7	-88.46	-870.1	661.3	995.1	946.9	48.20	20.644			
8,700.0	7,854.3	8,690.0	7,827.9	25.8	27.0	-88.48	-970.1	661.3	995.1	944.1	50.98	19.520			
8,800.0	7,854.5	8,790.0	7,828.6	27.3	28.4	-88.51	-1,070.1	661.3	995.1	941.2	53.88	18.467			
8,900.0	7,854.8	8,890.0	7,829.3	28.8	29.8	-88.53	-1,170.1	661.3	995.1	938.2	56.90	17.489			
9,000.0	7,855.0	8,990.0	7,830.0	30.3	31.3	-88.56	-1,270.0	661.3	995.0	935.0	60.00	16.583			
9,100.0	7,855.2	9,090.0	7,830.7	31.9	32.9	-88.59	-1,370.0	661.3	995.0	931.8	63.19	15.747			
9,200.0	7,855.5	9,190.0	7,831.4	33.5	34.4	-88.61	-1,470.0	661.3	995.0	928.6	66.44	14.975			
9,300.0	7,855.7	9,289.9	7,832.1	35.2	36.0	-88.64	-1,570.0	661.3	995.0	925.3	69.76	14.264			
9,400.0	7,856.0	9,389.9	7,832.8	36.8	37.7	-88.66	-1,670.0	661.3	995.0	921.9	73.12	13.608			
9,500.0	7,856.2	9,489.9	7,833.5	38.5	39.3	-88.69	-1,770.0	661.3	995.0	918.5	76.53	13.002			
9,600.0	7,856.5	9,589.9	7,834.2	40.2	41.0	-88.72	-1,870.0	661.3	995.0	915.0	79.97	12.441			
9,700.0	7,856.7	9,689.9	7,834.9	42.0	42.7	-88.74	-1,970.0	661.3	995.0	911.5	83.45	11.922			
9,800.0	7,856.9	9,789.9	7,835.6	43.7	44.4	-88.77	-2,070.0	661.3	995.0	908.0	86.96	11.441			
9,900.0	7,857.2	9,889.9	7,836.3	45.5	46.2	-88.79	-2,170.0	661.3	995.0	904.5	90.50	10.994			

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

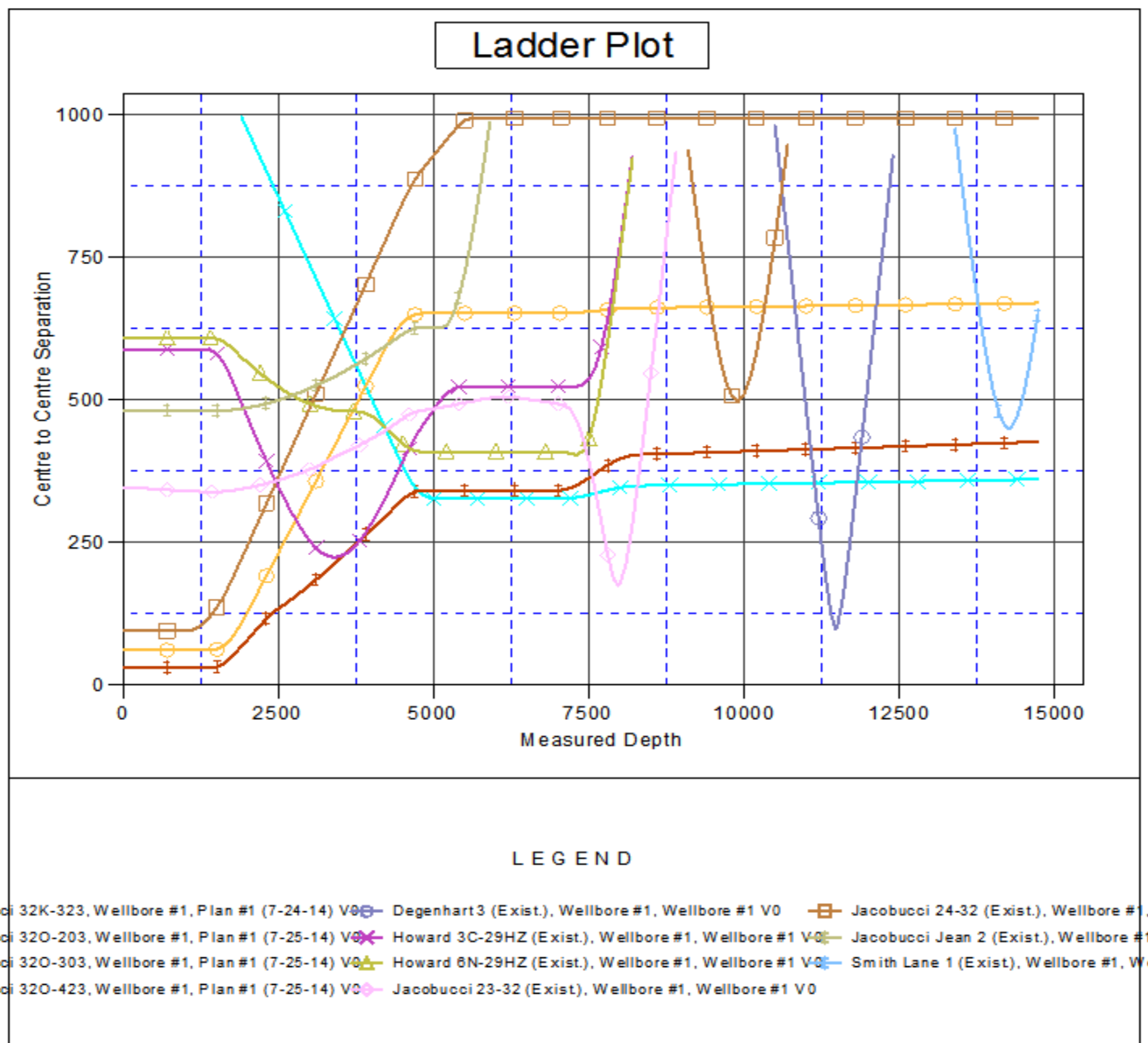
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
Project:	SEC.32-T1N-R67W	TVD Reference:	WELL @ 5073.0ft (Original Well Elev)
Reference Site:	Jacobucci 1N67W32O Pad Sec.32-T1N-R67W	MD Reference:	WELL @ 5073.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Jacobucci 32O-443	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													Offset Site Error:	0.0ft
Survey Program: 0-MWD													Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,000.0	7,857.4	9,989.9	7,837.0	47.2	47.9	-88.82	-2,270.0	661.3	994.9	900.9	94.06	10.578		
10,100.0	7,857.7	10,089.9	7,837.7	49.0	49.7	-88.85	-2,370.0	661.3	994.9	897.3	97.63	10.190		
10,200.0	7,857.9	10,189.9	7,838.4	50.8	51.4	-88.87	-2,470.0	661.3	994.9	893.7	101.23	9.828		
10,300.0	7,858.2	10,289.9	7,839.1	52.6	53.2	-88.90	-2,570.0	661.3	994.9	890.1	104.85	9.489		
10,400.0	7,858.4	10,389.9	7,839.8	54.4	55.0	-88.93	-2,670.0	661.3	994.9	886.4	108.47	9.172		
10,500.0	7,858.7	10,489.9	7,840.5	56.2	56.8	-88.95	-2,770.0	661.3	994.9	882.8	112.12	8.874		
10,600.0	7,858.9	10,589.9	7,841.2	58.1	58.6	-88.98	-2,870.0	661.3	994.9	879.1	115.77	8.594		
10,700.0	7,859.1	10,689.9	7,841.9	59.9	60.4	-89.00	-2,970.0	661.3	994.9	875.4	119.44	8.330		
10,800.0	7,859.4	10,789.9	7,842.6	61.7	62.2	-89.03	-3,070.0	661.3	994.9	871.8	123.11	8.081		
10,900.0	7,859.6	10,889.9	7,843.3	63.6	64.1	-89.06	-3,170.0	661.3	994.9	868.1	126.80	7.846		
11,000.0	7,859.9	10,989.9	7,843.9	65.4	65.9	-89.08	-3,270.0	661.3	994.9	864.4	130.49	7.624		
11,100.0	7,860.1	11,089.9	7,844.6	67.2	67.7	-89.11	-3,370.0	661.3	994.9	860.7	134.19	7.414		
11,200.0	7,860.4	11,189.9	7,845.3	69.1	69.6	-89.13	-3,470.0	661.3	994.8	856.9	137.90	7.214		
11,300.0	7,860.6	11,289.9	7,846.0	70.9	71.4	-89.16	-3,570.0	661.3	994.8	853.2	141.61	7.025		
11,400.0	7,860.9	11,389.9	7,846.7	72.8	73.2	-89.19	-3,670.0	661.3	994.8	849.5	145.33	6.845		
11,500.0	7,861.1	11,489.9	7,847.4	74.7	75.1	-89.21	-3,770.0	661.3	994.8	845.8	149.06	6.674		
11,600.0	7,861.3	11,589.9	7,848.1	76.5	76.9	-89.24	-3,870.0	661.3	994.8	842.0	152.79	6.511		
11,700.0	7,861.6	11,689.9	7,848.8	78.4	78.8	-89.27	-3,970.0	661.3	994.8	838.3	156.53	6.356		
11,800.0	7,861.8	11,789.9	7,849.5	80.3	80.7	-89.29	-4,070.0	661.3	994.8	834.5	160.27	6.207		
11,900.0	7,862.1	11,889.9	7,850.2	82.1	82.5	-89.32	-4,169.9	661.3	994.8	830.8	164.01	6.065		
12,000.0	7,862.3	11,989.9	7,850.9	84.0	84.4	-89.34	-4,269.9	661.3	994.8	827.0	167.76	5.930		
12,100.0	7,862.6	12,089.9	7,851.6	85.9	86.3	-89.37	-4,369.9	661.3	994.8	823.3	171.51	5.800		
12,200.0	7,862.8	12,189.9	7,852.3	87.7	88.1	-89.40	-4,469.9	661.3	994.8	819.5	175.27	5.676		
12,300.0	7,863.1	12,289.9	7,853.0	89.6	90.0	-89.42	-4,569.9	661.3	994.8	815.8	179.03	5.557		
12,400.0	7,863.3	12,389.9	7,853.7	91.5	91.9	-89.45	-4,669.9	661.3	994.8	812.0	182.79	5.442		
12,500.0	7,863.5	12,489.9	7,854.4	93.4	93.7	-89.47	-4,769.9	661.3	994.8	808.2	186.55	5.332		
12,600.0	7,863.8	12,589.9	7,855.1	95.3	95.6	-89.50	-4,869.9	661.3	994.8	804.4	190.32	5.227		
12,700.0	7,864.0	12,689.9	7,855.8	97.1	97.5	-89.53	-4,969.9	661.3	994.8	800.7	194.09	5.125		
12,800.0	7,864.3	12,789.9	7,856.5	99.0	99.4	-89.55	-5,069.9	661.3	994.8	796.9	197.86	5.028		
12,900.0	7,864.5	12,889.9	7,857.2	100.9	101.2	-89.58	-5,169.9	661.3	994.8	793.1	201.64	4.933		
13,000.0	7,864.8	12,989.9	7,857.9	102.8	103.1	-89.60	-5,269.9	661.3	994.8	789.3	205.41	4.843		
13,100.0	7,865.0	13,089.9	7,858.6	104.7	105.0	-89.63	-5,369.9	661.3	994.8	785.6	209.19	4.755		
13,200.0	7,865.3	13,189.9	7,859.3	106.6	106.9	-89.66	-5,469.9	661.3	994.8	781.8	212.97	4.671		
13,300.0	7,865.5	13,289.9	7,860.0	108.5	108.8	-89.68	-5,569.9	661.3	994.7	778.0	216.75	4.589		
13,400.0	7,865.7	13,389.9	7,860.7	110.4	110.7	-89.71	-5,669.9	661.3	994.7	774.2	220.54	4.511		
13,500.0	7,866.0	13,489.9	7,861.4	112.2	112.5	-89.74	-5,769.9	661.3	994.7	770.4	224.32	4.434		
13,600.0	7,866.2	13,589.9	7,862.1	114.1	114.4	-89.76	-5,869.9	661.3	994.7	766.6	228.11	4.361		
13,700.0	7,866.5	13,689.9	7,862.8	116.0	116.3	-89.79	-5,969.9	661.3	994.7	762.8	231.90	4.290		
13,800.0	7,866.7	13,789.9	7,863.5	117.9	118.2	-89.81	-6,069.9	661.3	994.7	759.1	235.69	4.221		
13,900.0	7,867.0	13,889.9	7,864.2	119.8	120.1	-89.84	-6,169.9	661.3	994.7	755.3	239.48	4.154		
14,000.0	7,867.2	13,989.9	7,864.9	121.7	122.0	-89.87	-6,269.9	661.3	994.7	751.5	243.27	4.089		
14,100.0	7,867.5	14,089.9	7,865.6	123.6	123.9	-89.89	-6,369.9	661.3	994.7	747.7	247.06	4.026		
14,200.0	7,867.7	14,189.9	7,866.3	125.5	125.8	-89.92	-6,469.9	661.3	994.7	743.9	250.86	3.965		
14,300.0	7,867.9	14,289.9	7,867.0	127.4	127.7	-89.94	-6,569.9	661.3	994.7	740.1	254.65	3.906		
14,400.0	7,868.2	14,389.9	7,867.7	129.3	129.6	-89.97	-6,669.9	661.3	994.7	736.3	258.45	3.849		
14,500.0	7,868.4	14,489.9	7,868.4	131.2	131.5	-90.00	-6,769.9	661.3	994.7	732.5	262.25	3.793		
14,511.3	7,868.5	14,501.2	7,868.5	131.4	131.7	-90.00	-6,781.2	661.3	994.7	732.1	262.68	3.787		
14,600.0	7,868.7	14,589.9	7,869.1	133.1	133.4	-90.02	-6,869.9	661.3	994.7	728.7	266.04	3.739		
14,700.0	7,868.9	14,689.9	7,869.8	135.0	135.2	-90.05	-6,969.9	661.3	994.7	724.9	269.84	3.686		
14,731.7	7,869.0	14,721.6	7,870.0	135.6	135.8	-90.06	-7,001.5	661.3	994.7	723.7	271.05	3.670 SF		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	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-443
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.38°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Jacobucci 32O-443
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-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
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Reference Depths are relative to WELL @ 5073.0ft (Original Well Elev) Coordinates are relative to: Jacobucci 32O-443

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°

