

PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Corcilius 6M-343**

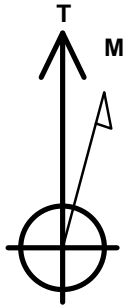
Surface Location: Corcilius 1S67W6J Pad Sec.6-T1S-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 5058.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1242666.62	3157771.76	39.998130	-104.936850	
RKB - 13' WELL @ 5071.0ft (RKB - 13')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E/W Hardline (6M-343)	1.0	-1901.1	1437.5	Rectangle (Sides: L3782.2 W100.0)
SHL 807'FNL & 975'FWL	1.0	0.0	0.0	Point
BHL 500'FSL & 2388'FWL	7737.0	-3792.2	1437.5	Point



Azimuths to True North
Magnetic North: 8.40°

Magnetic Field
Strength: 52492.4snT
Dip Angle: 66.56°
Date: 4/29/2015
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	KOP - Start Build 1.50
6009.6	6215.5	Start Drop -2.00
6988.2	7204.5	KOP #2 - Start Build 7.50
7752.2	8407.6	Start 3782.2 hold at 8407.6 MD
7737.0	12189.8	TD at 12189.8

Corcilius 1S67W6J Pad Sec.6-T1S-R67W
Corcilius 6M-343
Plan #1 (4-29-15)
15:48, September 23 2015

South(-)/North(+) (1500 ft/in)

SHL 807'FNL & 975'FWL

KOP #2 - Start Build 7.50

Corcilius 1 (Exist.)

Start 3782.2 hold at 8407.6 MD

Sack 23-6 (Exist.)

Casing Pt. -
817'FNL & 2412'FWL

Brederhoft 1 (P&A)

50' E/W Hardline (6M-343)

Brederhoft No.1 (Exist.)

Corcilius 6M-343

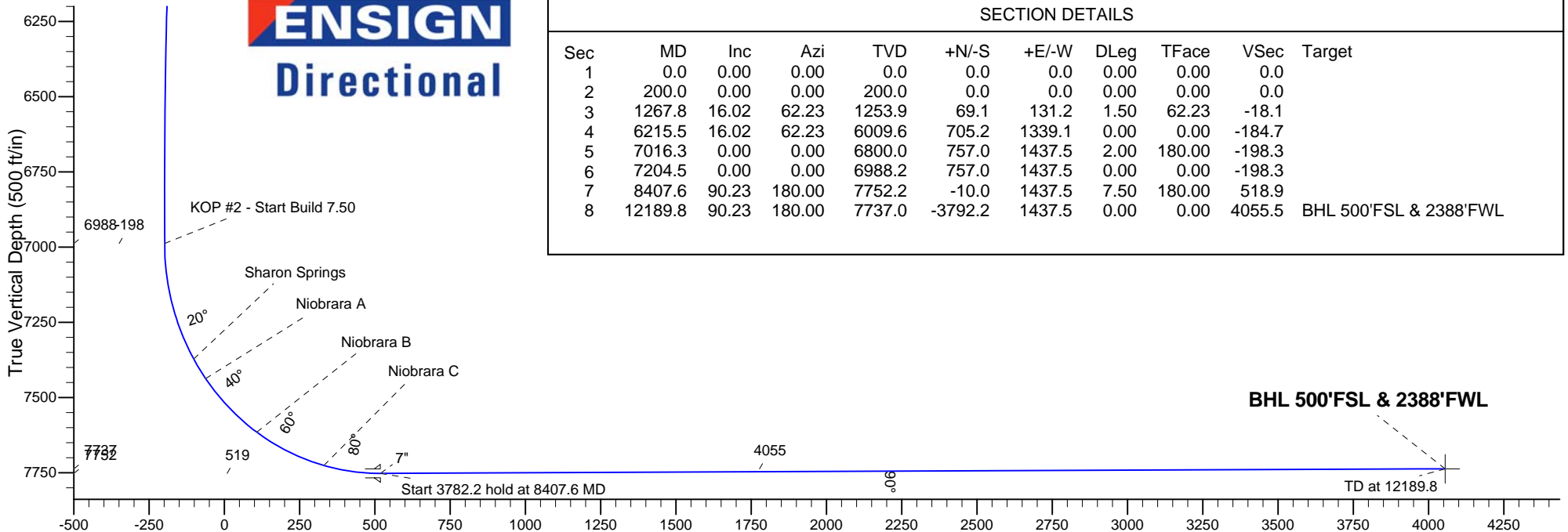
TD at 12189.8

BHL 500'FSL & 2388'FWL

Sec.6-T1S-R67W
460' Setbacks

West(-)/East(+) (1500 ft/in)

ENSIGN
Directional



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1267.8	16.02	62.23	1253.9	69.1	131.2	1.50	62.23	-18.1	
4	6215.5	16.02	62.23	6009.6	705.2	1339.1	0.00	0.00	-184.7	
5	7016.3	0.00	0.00	6800.0	757.0	1437.5	2.00	180.00	-198.3	
6	7204.5	0.00	0.00	6988.2	757.0	1437.5	0.00	0.00	-198.3	
7	8407.6	90.23	180.00	7752.2	-10.0	1437.5	7.50	180.00	518.9	
8	12189.8	90.23	180.00	7737.0	-3792.2	1437.5	0.00	0.00	4055.5	BHL 500'FSL & 2388'FWL

BHL 500'FSL & 2388'FWL

TD at 12189.8

Vertical Section at 159.24° (500 ft/in)



Directional

PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.6-T1S-R67W

Corcilus 1S67W6J Pad Sec.6-T1S-R67W

Corcilus 6M-343

Wellbore #1

Plan: Plan #1 (4-29-15)

Standard Planning Report

23 September, 2015

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6M-343
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-29-15)		

Project	SEC.6-T1S-R67W, Adams 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	Corcilus 1S67W6J Pad Sec.6-T1S-R67W		
Site Position:		Northing:	1,242,661.65 usft
From:	Lat/Long	Easting:	3,157,561.67 usft
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "
		Latitude:	39.998120
		Longitude:	-104.936850
		Grid Convergence:	0.36 °

Well	Corcilus 6M-343		
Well Position	+N/-S	3.6 ft	Northing:
	+E/-W	210.1 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/29/2015	8.40	66.56	52,492

Design	Plan #1 (4-29-15)			
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	159.24

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,267.8	16.02	62.23	1,253.9	69.1	131.2	1.50	1.50	0.00	62.23	
6,215.5	16.02	62.23	6,009.6	705.2	1,339.1	0.00	0.00	0.00	0.00	
7,016.3	0.00	0.00	6,800.0	757.0	1,437.5	2.00	-2.00	0.00	180.00	
7,204.5	0.00	0.00	6,988.2	757.0	1,437.5	0.00	0.00	0.00	0.00	
8,407.6	90.23	180.00	7,752.2	-10.0	1,437.5	7.50	7.50	0.00	180.00	
12,189.8	90.23	180.00	7,737.0	-3,792.2	1,437.5	0.00	0.00	0.00	0.00	BHL 500'FSL & 2388'

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6M-343
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-29-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
50' E/W Hardline (6M-343) - SHL 807'FNL & 975'FWL									
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
KOP - Start Build 1.50									
300.0	1.50	62.23	300.0	0.6	1.2	-0.2	1.50	1.50	0.00
400.0	3.00	62.23	399.9	2.4	4.6	-0.6	1.50	1.50	0.00
500.0	4.50	62.23	499.7	5.5	10.4	-1.4	1.50	1.50	0.00
600.0	6.00	62.23	599.3	9.7	18.5	-2.6	1.50	1.50	0.00
700.0	7.50	62.23	698.6	15.2	28.9	-4.0	1.50	1.50	0.00
800.0	9.00	62.23	797.5	21.9	41.6	-5.7	1.50	1.50	0.00
900.0	10.50	62.23	896.1	29.8	56.6	-7.8	1.50	1.50	0.00
1,000.0	12.00	62.23	994.2	38.9	73.9	-10.2	1.50	1.50	0.00
1,100.0	13.50	62.23	1,091.7	49.2	93.4	-12.9	1.50	1.50	0.00
1,200.0	15.00	62.23	1,188.6	60.6	115.2	-15.9	1.50	1.50	0.00
1,267.8	16.02	62.23	1,253.9	69.1	131.2	-18.1	1.50	1.50	0.00
1,300.0	16.02	62.23	1,284.9	73.2	139.1	-19.2	0.00	0.00	0.00
1,400.0	16.02	62.23	1,381.0	86.1	163.5	-22.6	0.00	0.00	0.00
1,500.0	16.02	62.23	1,477.1	98.9	187.9	-25.9	0.00	0.00	0.00
1,600.0	16.02	62.23	1,573.3	111.8	212.3	-29.3	0.00	0.00	0.00
1,700.0	16.02	62.23	1,669.4	124.7	236.7	-32.7	0.00	0.00	0.00
1,800.0	16.02	62.23	1,765.5	137.5	261.1	-36.0	0.00	0.00	0.00
1,900.0	16.02	62.23	1,861.6	150.4	285.5	-39.4	0.00	0.00	0.00
2,000.0	16.02	62.23	1,957.7	163.2	310.0	-42.8	0.00	0.00	0.00
2,100.0	16.02	62.23	2,053.8	176.1	334.4	-46.1	0.00	0.00	0.00
2,200.0	16.02	62.23	2,150.0	188.9	358.8	-49.5	0.00	0.00	0.00
2,300.0	16.02	62.23	2,246.1	201.8	383.2	-52.9	0.00	0.00	0.00
2,400.0	16.02	62.23	2,342.2	214.7	407.6	-56.2	0.00	0.00	0.00
2,500.0	16.02	62.23	2,438.3	227.5	432.0	-59.6	0.00	0.00	0.00
2,600.0	16.02	62.23	2,534.4	240.4	456.4	-63.0	0.00	0.00	0.00
2,700.0	16.02	62.23	2,630.6	253.2	480.9	-66.3	0.00	0.00	0.00
2,800.0	16.02	62.23	2,726.7	266.1	505.3	-69.7	0.00	0.00	0.00
2,900.0	16.02	62.23	2,822.8	278.9	529.7	-73.1	0.00	0.00	0.00
3,000.0	16.02	62.23	2,918.9	291.8	554.1	-76.4	0.00	0.00	0.00
3,100.0	16.02	62.23	3,015.0	304.6	578.5	-79.8	0.00	0.00	0.00
3,200.0	16.02	62.23	3,111.1	317.5	602.9	-83.2	0.00	0.00	0.00
3,300.0	16.02	62.23	3,207.3	330.4	627.3	-86.5	0.00	0.00	0.00
3,400.0	16.02	62.23	3,303.4	343.2	651.7	-89.9	0.00	0.00	0.00
3,500.0	16.02	62.23	3,399.5	356.1	676.2	-93.3	0.00	0.00	0.00
3,600.0	16.02	62.23	3,495.6	368.9	700.6	-96.7	0.00	0.00	0.00
3,700.0	16.02	62.23	3,591.7	381.8	725.0	-100.0	0.00	0.00	0.00
3,800.0	16.02	62.23	3,687.8	394.6	749.4	-103.4	0.00	0.00	0.00
3,900.0	16.02	62.23	3,784.0	407.5	773.8	-106.8	0.00	0.00	0.00
4,000.0	16.02	62.23	3,880.1	420.4	798.2	-110.1	0.00	0.00	0.00
4,100.0	16.02	62.23	3,976.2	433.2	822.6	-113.5	0.00	0.00	0.00
4,200.0	16.02	62.23	4,072.3	446.1	847.1	-116.9	0.00	0.00	0.00
4,300.0	16.02	62.23	4,168.4	458.9	871.5	-120.2	0.00	0.00	0.00
4,400.0	16.02	62.23	4,264.6	471.8	895.9	-123.6	0.00	0.00	0.00
4,500.0	16.02	62.23	4,360.7	484.6	920.3	-127.0	0.00	0.00	0.00
4,572.1	16.02	62.23	4,430.0	493.9	937.9	-129.4	0.00	0.00	0.00
Parkman									
4,600.0	16.02	62.23	4,456.8	497.5	944.7	-130.3	0.00	0.00	0.00

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Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-29-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,700.0	16.02	62.23	4,552.9	510.3	969.1	-133.7	0.00	0.00	0.00
4,800.0	16.02	62.23	4,649.0	523.2	993.5	-137.1	0.00	0.00	0.00
4,900.0	16.02	62.23	4,745.1	536.1	1,017.9	-140.4	0.00	0.00	0.00
4,957.1	16.02	62.23	4,800.0	543.4	1,031.9	-142.4	0.00	0.00	0.00
Sussex									
5,000.0	16.02	62.23	4,841.3	548.9	1,042.4	-143.8	0.00	0.00	0.00
5,100.0	16.02	62.23	4,937.4	561.8	1,066.8	-147.2	0.00	0.00	0.00
5,200.0	16.02	62.23	5,033.5	574.6	1,091.2	-150.5	0.00	0.00	0.00
5,300.0	16.02	62.23	5,129.6	587.5	1,115.6	-153.9	0.00	0.00	0.00
5,400.0	16.02	62.23	5,225.7	600.3	1,140.0	-157.3	0.00	0.00	0.00
5,500.0	16.02	62.23	5,321.9	613.2	1,164.4	-160.6	0.00	0.00	0.00
5,560.5	16.02	62.23	5,380.0	621.0	1,179.2	-162.7	0.00	0.00	0.00
Shannon									
5,600.0	16.02	62.23	5,418.0	626.1	1,188.8	-164.0	0.00	0.00	0.00
5,700.0	16.02	62.23	5,514.1	638.9	1,213.3	-167.4	0.00	0.00	0.00
5,800.0	16.02	62.23	5,610.2	651.8	1,237.7	-170.7	0.00	0.00	0.00
5,900.0	16.02	62.23	5,706.3	664.6	1,262.1	-174.1	0.00	0.00	0.00
6,000.0	16.02	62.23	5,802.4	677.5	1,286.5	-177.5	0.00	0.00	0.00
6,100.0	16.02	62.23	5,898.6	690.3	1,310.9	-180.9	0.00	0.00	0.00
6,200.0	16.02	62.23	5,994.7	703.2	1,335.3	-184.2	0.00	0.00	0.00
6,215.5	16.02	62.23	6,009.6	705.2	1,339.1	-184.7	0.00	0.00	0.00
Start Drop -2.00									
6,300.0	14.33	62.23	6,091.1	715.5	1,358.7	-187.4	2.00	-2.00	0.00
6,400.0	12.33	62.23	6,188.4	726.2	1,379.1	-190.3	2.00	-2.00	0.00
6,500.0	10.33	62.23	6,286.5	735.4	1,396.4	-192.7	2.00	-2.00	0.00
6,600.0	8.33	62.23	6,385.2	742.9	1,410.8	-194.6	2.00	-2.00	0.00
6,700.0	6.33	62.23	6,484.3	748.9	1,422.1	-196.2	2.00	-2.00	0.00
6,800.0	4.33	62.23	6,583.9	753.2	1,430.3	-197.3	2.00	-2.00	0.00
6,900.0	2.33	62.23	6,683.7	755.9	1,435.4	-198.0	2.00	-2.00	0.00
7,000.0	0.33	62.23	6,783.7	757.0	1,437.5	-198.3	2.00	-2.00	0.00
7,016.3	0.00	0.00	6,800.0	757.0	1,437.5	-198.3	2.00	-2.00	0.00
7,100.0	0.00	0.00	6,883.7	757.0	1,437.5	-198.3	0.00	0.00	0.00
7,200.0	0.00	0.00	6,983.7	757.0	1,437.5	-198.3	0.00	0.00	0.00
7,204.5	0.00	0.00	6,988.2	757.0	1,437.5	-198.3	0.00	0.00	0.00
KOP #2 - Start Build 7.50									
7,300.0	7.16	180.00	7,083.4	751.0	1,437.5	-192.7	7.50	7.50	0.00
7,400.0	14.66	180.00	7,181.6	732.1	1,437.5	-175.1	7.50	7.50	0.00
7,500.0	22.16	180.00	7,276.4	700.6	1,437.5	-145.6	7.50	7.50	0.00
7,600.0	29.66	180.00	7,366.3	656.9	1,437.5	-104.7	7.50	7.50	0.00
7,606.6	30.15	180.00	7,372.0	653.6	1,437.5	-101.6	7.50	7.50	0.00
Sharon Springs									
7,684.2	35.97	180.00	7,437.0	611.3	1,437.5	-62.1	7.50	7.50	0.00
Niobrara A									
7,700.0	37.16	180.00	7,449.7	601.9	1,437.5	-53.3	7.50	7.50	0.00
7,800.0	44.66	180.00	7,525.2	536.5	1,437.5	7.9	7.50	7.50	0.00
7,900.0	52.16	180.00	7,591.5	461.7	1,437.5	77.8	7.50	7.50	0.00
7,939.6	55.13	180.00	7,615.0	429.8	1,437.5	107.6	7.50	7.50	0.00
Niobrara B									
8,000.0	59.66	180.00	7,647.6	379.0	1,437.5	155.2	7.50	7.50	0.00
8,100.0	67.16	180.00	7,692.3	289.6	1,437.5	238.7	7.50	7.50	0.00
8,200.0	74.66	180.00	7,725.0	195.2	1,437.5	327.0	7.50	7.50	0.00
8,203.9	74.95	180.00	7,726.0	191.4	1,437.5	330.6	7.50	7.50	0.00

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Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-29-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Niobrara C									
8,300.0	82.16	180.00	7,745.0	97.3	1,437.5	418.6	7.50	7.50	0.00
8,400.0	89.66	180.00	7,752.2	-2.4	1,437.5	511.8	7.50	7.50	0.00
8,407.6	90.23	180.00	7,752.2	-10.0	1,437.5	518.9	7.50	7.50	0.00
Start 3782.2 hold at 8407.6 MD - 7"									
8,500.0	90.23	180.00	7,751.8	-102.4	1,437.5	605.3	0.00	0.00	0.00
8,600.0	90.23	180.00	7,751.4	-202.4	1,437.5	698.8	0.00	0.00	0.00
8,700.0	90.23	180.00	7,751.0	-302.4	1,437.5	792.3	0.00	0.00	0.00
8,800.0	90.23	180.00	7,750.6	-402.4	1,437.5	885.8	0.00	0.00	0.00
8,900.0	90.23	180.00	7,750.2	-502.4	1,437.5	979.3	0.00	0.00	0.00
9,000.0	90.23	180.00	7,749.8	-602.4	1,437.5	1,072.8	0.00	0.00	0.00
9,100.0	90.23	180.00	7,749.4	-702.4	1,437.5	1,166.3	0.00	0.00	0.00
9,200.0	90.23	180.00	7,749.0	-802.4	1,437.5	1,259.8	0.00	0.00	0.00
9,300.0	90.23	180.00	7,748.6	-902.4	1,437.5	1,353.3	0.00	0.00	0.00
9,400.0	90.23	180.00	7,748.2	-1,002.4	1,437.5	1,446.8	0.00	0.00	0.00
9,500.0	90.23	180.00	7,747.8	-1,102.4	1,437.5	1,540.3	0.00	0.00	0.00
9,600.0	90.23	180.00	7,747.4	-1,202.4	1,437.5	1,633.8	0.00	0.00	0.00
9,700.0	90.23	180.00	7,747.0	-1,302.4	1,437.5	1,727.4	0.00	0.00	0.00
9,800.0	90.23	180.00	7,746.6	-1,402.4	1,437.5	1,820.9	0.00	0.00	0.00
9,900.0	90.23	180.00	7,746.2	-1,502.4	1,437.5	1,914.4	0.00	0.00	0.00
10,000.0	90.23	180.00	7,745.8	-1,602.4	1,437.5	2,007.9	0.00	0.00	0.00
10,100.0	90.23	180.00	7,745.4	-1,702.4	1,437.5	2,101.4	0.00	0.00	0.00
10,200.0	90.23	180.00	7,745.0	-1,802.4	1,437.5	2,194.9	0.00	0.00	0.00
10,300.0	90.23	180.00	7,744.6	-1,902.4	1,437.5	2,288.4	0.00	0.00	0.00
10,400.0	90.23	180.00	7,744.2	-2,002.4	1,437.5	2,381.9	0.00	0.00	0.00
10,500.0	90.23	180.00	7,743.8	-2,102.4	1,437.5	2,475.4	0.00	0.00	0.00
10,600.0	90.23	180.00	7,743.4	-2,202.4	1,437.5	2,568.9	0.00	0.00	0.00
10,700.0	90.23	180.00	7,743.0	-2,302.4	1,437.5	2,662.4	0.00	0.00	0.00
10,800.0	90.23	180.00	7,742.6	-2,402.4	1,437.5	2,755.9	0.00	0.00	0.00
10,900.0	90.23	180.00	7,742.2	-2,502.4	1,437.5	2,849.4	0.00	0.00	0.00
11,000.0	90.23	180.00	7,741.8	-2,602.4	1,437.5	2,942.9	0.00	0.00	0.00
11,100.0	90.23	180.00	7,741.4	-2,702.4	1,437.5	3,036.4	0.00	0.00	0.00
11,200.0	90.23	180.00	7,741.0	-2,802.4	1,437.5	3,130.0	0.00	0.00	0.00
11,300.0	90.23	180.00	7,740.6	-2,902.4	1,437.5	3,223.5	0.00	0.00	0.00
11,400.0	90.23	180.00	7,740.2	-3,002.4	1,437.5	3,317.0	0.00	0.00	0.00
11,500.0	90.23	180.00	7,739.8	-3,102.4	1,437.5	3,410.5	0.00	0.00	0.00
11,600.0	90.23	180.00	7,739.4	-3,202.4	1,437.5	3,504.0	0.00	0.00	0.00
11,700.0	90.23	180.00	7,739.0	-3,302.4	1,437.5	3,597.5	0.00	0.00	0.00
11,800.0	90.23	180.00	7,738.6	-3,402.4	1,437.5	3,691.0	0.00	0.00	0.00
11,900.0	90.23	180.00	7,738.2	-3,502.4	1,437.5	3,784.5	0.00	0.00	0.00
12,000.0	90.23	180.00	7,737.8	-3,602.4	1,437.5	3,878.0	0.00	0.00	0.00
12,100.0	90.23	180.00	7,737.4	-3,702.4	1,437.5	3,971.5	0.00	0.00	0.00
12,189.8	90.23	180.00	7,737.0	-3,792.2	1,437.5	4,055.5	0.00	0.00	0.00
TD at 12189.8 - BHL 500'FSL & 2388'FWL									

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6M-343
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-29-15)		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
50' E/W Hardline (6M-34) - plan misses target center by 2383.4ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W100.0 H3,782.2 D0.0)	0.00	0.00	1.0	-1,901.1	1,437.5	1,240,774.75	3,159,221.25	39.992911	-104.931720
SHL 807'FNL & 975'FWI - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,242,666.62	3,157,771.76	39.998130	-104.936850
BHL 500'FSL & 2388'FWI - plan hits target center - Point	0.00	0.00	7,737.0	-3,792.2	1,437.5	1,238,883.78	3,159,233.26	39.987720	-104.931720

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
8,407.6	7,752.2	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,572.1	4,430.0	Parkman		0.00		
4,957.1	4,800.0	Sussex		0.00		
5,560.5	5,380.0	Shannon		0.00		
7,606.6	7,372.0	Sharon Springs		0.00		
7,684.2	7,437.0	Niobrara A		0.00		
7,939.6	7,615.0	Niobrara B		0.00		
8,203.9	7,726.0	Niobrara C		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
200.0	200.0	0.0	0.0	KOP - Start Build 1.50	
6,215.5	6,009.6	705.2	1,339.1	Start Drop -2.00	
7,204.5	6,988.2	757.0	1,437.5	KOP #2 - Start Build 7.50	
8,407.6	7,752.2	-10.0	1,437.5	Start 3782.2 hold at 8407.6 MD	
12,189.8	7,737.0	-3,792.2	1,437.5	TD at 12189.8	



Directional

PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.6-T1S-R67W

Corcilus 1S67W6J Pad Sec.6-T1S-R67W

Corcilus 6M-343

Wellbore #1

Plan #1 (4-29-15)

Anticollision Report

23 September, 2015



Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (4-29-15)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	5/5/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,189.8	Plan #1 (4-29-15) (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						
Corcilius 1S67W6J Pad Sec.6-T1S-R67W						
Corcilius 6E-203 - Wellbore #1 - Plan #1 (4-29-15)	165.6	168.6	210.2	209.6	399.117	CC
Corcilius 6E-203 - Wellbore #1 - Plan #1 (4-29-15)	200.0	202.9	210.2	209.5	308.718	ES
Corcilius 6E-203 - Wellbore #1 - Plan #1 (4-29-15)	2,800.0	2,643.6	972.9	956.6	59.874	SF
Corcilius 6E-223 - Wellbore #1 - Plan #1 (4-29-15)	200.0	203.0	148.5	147.9	218.101	CC, ES
Corcilius 6E-223 - Wellbore #1 - Plan #1 (4-29-15)	3,500.0	3,362.1	991.2	970.2	47.345	SF
Corcilius 6E-323 - Wellbore #1 - Plan #1 (4-29-15)	200.0	203.0	179.3	178.7	263.342	CC, ES
Corcilius 6E-323 - Wellbore #1 - Plan #1 (4-29-15)	3,100.0	2,948.4	986.1	967.6	53.243	SF
Corcilius 6J-203 - Wellbore #1 - Plan #1 (4-29-15)	200.0	202.0	89.7	89.0	132.080	CC, ES
Corcilius 6J-203 - Wellbore #1 - Plan #1 (4-29-15)	5,200.0	5,137.7	992.4	959.8	30.388	SF
Corcilius 6J-303 - Wellbore #1 - Plan #1 (4-29-15)	200.0	201.0	58.8	58.2	86.965	CC, ES
Corcilius 6J-303 - Wellbore #1 - Plan #1 (4-29-15)	12,189.8	12,052.3	938.9	783.0	6.026	SF
Corcilius 6J-443 - Wellbore #1 - Plan #1 (4-29-15)	200.0	202.0	120.5	119.8	177.563	CC, ES
Corcilius 6J-443 - Wellbore #1 - Plan #1 (4-29-15)	4,200.0	4,105.2	998.8	975.2	42.290	SF
Corcilius 6M-243 - Wellbore #1 - Plan #1 (4-29-15)	200.0	200.0	30.8	30.1	45.705	CC, ES
Corcilius 6M-243 - Wellbore #1 - Plan #1 (4-29-15)	12,189.8	12,066.2	284.3	141.1	1.985	SF

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

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						
Existing Wells Sec.6-T1S-R67W						
Albert Sack D 1 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Albert Sack D 3 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Bredehoft 1 (P&A) - Wellbore #1 - Wellbore #1						Out of range
Bredehoft 13-6 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Bredehoft No.1 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Corcilius 1 (Exist.) - Wellbore #1 - Wellbore #1	4,260.1	4,103.1	315.2	212.2	3.060	CC
Corcilius 1 (Exist.) - Wellbore #1 - Wellbore #1	4,400.0	4,237.6	317.6	211.2	2.985	ES
Corcilius 1 (Exist.) - Wellbore #1 - Wellbore #1	4,500.0	4,333.7	322.1	213.5	2.965	SF
Morrison 16-1 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Morrison 9-1 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Morrison Investment CO 2 (Exist.) - Wellbore #1 - Wellbo						Out of range
Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1	0.0	0.0	571.5			
Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1	2,400.0	2,315.9	975.1	962.3	76.638	SF
Sack 12-6 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Sack 22-6 (Exist.) - Wellbore #1 - Wellbore #1	955.6	936.0	618.6	614.0	133.127	CC
Sack 22-6 (Exist.) - Wellbore #1 - Wellbore #1	1,000.0	978.8	618.7	613.8	125.395	ES
Sack 22-6 (Exist.) - Wellbore #1 - Wellbore #1	3,800.0	3,675.2	995.5	973.2	44.532	SF
Sack 23-6 (Exist.) - Wellbore #1 - Wellbore #1	9,297.1	7,736.8	736.6	692.0	16.546	CC
Sack 23-6 (Exist.) - Wellbore #1 - Wellbore #1	9,300.0	7,736.8	736.6	692.0	16.532	ES
Sack 23-6 (Exist.) - Wellbore #1 - Wellbore #1	9,500.0	7,735.6	764.0	716.7	16.150	SF
Sack, Casper J1 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Veal 14-6 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Wyman 34-6 (Exist.) - Wellbore #1 - Wellbore #1	12,084.1	7,788.4	762.2	530.4	3.289	CC
Wyman 34-6 (Exist.) - Wellbore #1 - Wellbore #1	12,100.0	7,788.4	762.3	530.3	3.285	ES, SF

Offset Design													Offset Site Error:	0.0 ft
Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6E-203 - Wellbore #1 - Plan #1 (4-29-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Between Centres (ft)	Between Ellipses (ft)						
0.0	0.0	3.0	3.0	0.0	0.0	-90.99	-3.6	-210.1	210.2	210.2	0.00	N/A		
100.0	100.0	103.0	103.0	0.1	0.1	-90.99	-3.6	-210.1	210.2	209.9	0.23	907.783		
165.6	165.6	168.6	168.6	0.3	0.3	-90.99	-3.6	-210.1	210.2	209.6	0.53	399.117 CC		
200.0	200.0	202.9	202.9	0.3	0.3	-90.99	-3.6	-210.1	210.2	209.5	0.68	308.718 ES		
300.0	300.0	300.0	300.0	0.6	0.6	-153.10	-2.7	-211.0	212.2	211.1	1.12	188.994		
400.0	399.9	395.6	395.5	0.8	0.8	-152.77	0.1	-213.5	218.3	216.7	1.57	138.807		
500.0	499.7	491.3	491.0	1.0	1.0	-152.28	4.6	-217.6	228.3	226.3	2.04	112.126		
600.0	599.3	586.4	585.7	1.3	1.2	-151.65	10.8	-223.3	242.3	239.8	2.51	96.415		
700.0	698.6	680.5	679.2	1.6	1.5	-150.94	18.7	-230.4	260.3	257.3	3.01	86.567		
800.0	797.5	773.4	771.3	1.9	1.8	-150.18	28.2	-239.0	282.2	278.7	3.52	80.170		
900.0	896.1	865.1	861.7	2.2	2.1	-149.41	39.1	-249.0	308.0	303.9	4.06	75.946		
1,000.0	994.2	960.0	955.1	2.6	2.5	-148.72	51.5	-260.2	337.0	332.3	4.62	72.945		
1,100.0	1,091.7	1,055.0	1,048.6	3.1	2.8	-148.30	64.0	-271.5	368.1	362.9	5.20	70.838		
1,200.0	1,188.6	1,149.3	1,141.4	3.5	3.2	-148.09	76.3	-282.7	401.4	395.6	5.79	69.312		
1,267.8	1,253.9	1,212.8	1,203.9	3.9	3.4	-148.04	84.6	-290.3	425.1	418.9	6.20	68.536		
1,300.0	1,284.9	1,242.8	1,233.5	4.1	3.5	-148.13	88.6	-293.9	436.6	430.2	6.40	68.194		
1,400.0	1,381.0	1,336.2	1,325.4	4.6	3.9	-148.38	100.8	-305.0	472.3	465.3	7.03	67.143		
1,500.0	1,477.1	1,429.6	1,417.4	5.2	4.3	-148.59	113.0	-316.1	508.1	500.4	7.67	66.237		
1,600.0	1,573.3	1,523.0	1,509.3	5.7	4.6	-148.78	125.3	-327.2	543.8	535.5	8.31	65.409		

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design		Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6E-203 - Wellbore #1 - Plan #1 (4-29-15)											Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
1,700.0	1,669.4	1,616.4	1,601.2	6.3	5.0	-148.94	137.5	-338.3	579.5	570.6	8.96	64.664		
1,800.0	1,765.5	1,709.8	1,693.1	6.8	5.4	-149.08	149.7	-349.4	615.3	605.7	9.62	63.993		
1,900.0	1,861.6	1,803.1	1,785.0	7.4	5.7	-149.21	161.9	-360.5	651.0	640.8	10.27	63.389		
2,000.0	1,957.7	1,896.5	1,876.9	8.0	6.1	-149.32	174.2	-371.6	686.8	675.9	10.93	62.843		
2,100.0	2,053.8	1,989.9	1,968.8	8.5	6.5	-149.42	186.4	-382.7	722.6	711.0	11.59	62.347		
2,200.0	2,150.0	2,083.3	2,060.7	9.1	6.8	-149.52	198.6	-393.8	758.3	746.1	12.25	61.896		
2,300.0	2,246.1	2,176.7	2,152.6	9.7	7.2	-149.60	210.9	-404.9	794.1	781.2	12.91	61.485		
2,400.0	2,342.2	2,270.0	2,244.5	10.3	7.6	-149.68	223.1	-416.0	829.8	816.3	13.58	61.108		
2,500.0	2,438.3	2,363.4	2,336.4	10.8	8.0	-149.75	235.3	-427.2	865.6	851.3	14.25	60.761		
2,600.0	2,534.4	2,456.8	2,428.4	11.4	8.3	-149.81	247.6	-438.3	901.4	886.4	14.91	60.442		
2,700.0	2,630.6	2,550.2	2,520.3	12.0	8.7	-149.87	259.8	-449.4	937.1	921.5	15.58	60.147		
2,800.0	2,726.7	2,643.6	2,612.2	12.5	9.1	-149.93	272.0	-460.5	972.9	956.6	16.25	59.874 SF		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design		Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6E-223 - Wellbore #1 - Plan #1 (4-29-15)											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	3.0	3.0	0.0	0.0	-91.41	-3.6	-148.5	148.5	148.5	0.00	N/A			
100.0	100.0	103.0	103.0	0.1	0.1	-91.41	-3.6	-148.5	148.5	148.3	0.23	641.597			
200.0	200.0	203.0	203.0	0.3	0.3	-91.41	-3.6	-148.5	148.5	147.9	0.68	218.101	CC, ES		
300.0	300.0	303.0	303.0	0.6	0.6	-153.85	-3.6	-148.5	149.7	148.6	1.13	132.450			
400.0	399.9	402.9	402.9	0.8	0.8	-154.47	-3.6	-148.5	153.2	151.7	1.58	96.795			
500.0	499.7	502.7	502.7	1.0	1.0	-155.45	-3.6	-148.5	159.2	157.1	2.04	77.974			
600.0	599.3	602.3	602.3	1.3	1.2	-156.70	-3.6	-148.5	167.5	165.0	2.50	66.919			
700.0	698.6	701.6	701.6	1.6	1.5	-158.13	-3.6	-148.5	178.4	175.4	2.97	60.078			
800.0	797.5	800.0	800.0	1.9	1.7	-159.65	-3.6	-148.5	191.8	188.4	3.44	55.800			
900.0	896.1	897.7	897.7	2.2	1.9	-160.84	-2.5	-149.0	208.1	204.2	3.91	53.262			
1,000.0	994.2	994.3	994.2	2.6	2.1	-161.42	0.9	-150.5	227.6	223.2	4.38	51.938			
1,100.0	1,091.7	1,090.2	1,089.9	3.1	2.3	-161.52	6.4	-153.1	250.2	245.3	4.87	51.399			
1,200.0	1,188.6	1,185.2	1,184.5	3.5	2.6	-161.25	14.0	-156.5	275.8	270.4	5.37	51.367			
1,267.8	1,253.9	1,249.0	1,247.9	3.9	2.7	-160.90	20.3	-159.4	294.8	289.1	5.72	51.529			
1,300.0	1,284.9	1,279.2	1,277.9	4.1	2.8	-160.74	23.7	-160.9	304.2	298.3	5.89	51.628			
1,400.0	1,381.0	1,372.5	1,370.4	4.6	3.1	-160.04	35.3	-166.2	333.9	327.4	6.45	51.788			
1,500.0	1,477.1	1,465.2	1,461.9	5.2	3.3	-159.10	48.9	-172.4	364.2	357.2	7.03	51.789			
1,600.0	1,573.3	1,559.6	1,554.7	5.7	3.6	-158.06	64.2	-179.4	395.1	387.5	7.66	51.615			
1,700.0	1,669.4	1,654.5	1,648.1	6.3	3.9	-157.16	79.5	-186.4	426.2	417.9	8.30	51.370			
1,800.0	1,765.5	1,749.3	1,741.4	6.8	4.3	-156.38	94.9	-193.4	457.3	448.3	8.95	51.091			
1,900.0	1,861.6	1,844.2	1,834.8	7.4	4.6	-155.71	110.3	-200.4	488.5	478.8	9.62	50.780			
2,000.0	1,957.7	1,939.1	1,928.2	8.0	4.9	-155.11	125.6	-207.3	519.7	509.4	10.30	50.478			
2,100.0	2,053.8	2,033.9	2,021.5	8.5	5.3	-154.58	141.0	-214.3	551.0	540.0	10.98	50.181			
2,200.0	2,150.0	2,128.8	2,114.9	9.1	5.6	-154.11	156.4	-221.3	582.3	570.6	11.67	49.895			
2,300.0	2,246.1	2,223.7	2,208.2	9.7	6.0	-153.68	171.7	-228.3	613.6	601.3	12.37	49.622			
2,400.0	2,342.2	2,318.5	2,301.6	10.3	6.4	-153.30	187.1	-235.3	645.0	631.9	13.07	49.364			
2,500.0	2,438.3	2,413.4	2,394.9	10.8	6.7	-152.95	202.4	-242.3	676.4	662.6	13.77	49.120			
2,600.0	2,534.4	2,508.3	2,488.3	11.4	7.1	-152.63	217.8	-249.3	707.8	693.3	14.48	48.890			
2,700.0	2,630.6	2,603.1	2,581.6	12.0	7.4	-152.34	233.2	-256.3	739.3	724.1	15.19	48.674			
2,800.0	2,726.7	2,698.0	2,675.0	12.5	7.8	-152.08	248.5	-263.3	770.7	754.8	15.90	48.471			
2,900.0	2,822.8	2,792.9	2,768.3	13.1	8.2	-151.83	263.9	-270.3	802.2	785.6	16.62	48.280			
3,000.0	2,918.9	2,887.7	2,861.7	13.7	8.5	-151.61	279.2	-277.3	833.6	816.3	17.33	48.100			
3,100.0	3,015.0	2,982.6	2,955.0	14.3	8.9	-151.39	294.6	-284.3	865.1	847.1	18.05	47.931			
3,200.0	3,111.1	3,077.5	3,048.4	14.8	9.3	-151.20	310.0	-291.3	896.6	877.9	18.77	47.771			
3,300.0	3,207.3	3,172.3	3,141.7	15.4	9.6	-151.02	325.3	-298.3	928.1	908.7	19.49	47.621			
3,400.0	3,303.4	3,267.2	3,235.1	16.0	10.0	-150.85	340.7	-305.3	959.7	939.4	20.21	47.479			
3,500.0	3,399.5	3,362.1	3,328.5	16.6	10.4	-150.69	356.0	-312.3	991.2	970.2	20.94	47.345	SF		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6E-323 - Wellbore #1 - Plan #1 (4-29-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	3.0	3.0	0.0	0.0	-91.16	-3.6	-179.3	179.3	179.3	0.00	N/A		
100.0	100.0	103.0	103.0	0.1	0.1	-91.16	-3.6	-179.3	179.3	179.1	0.23	774.685		
200.0	200.0	203.0	203.0	0.3	0.3	-91.16	-3.6	-179.3	179.3	178.7	0.68	263.342 CC, ES		
300.0	300.0	303.0	303.0	0.6	0.6	-153.57	-3.6	-179.3	180.5	179.4	1.13	159.711		
400.0	399.9	402.8	402.8	0.8	0.8	-154.09	-3.6	-179.3	184.0	182.5	1.58	116.272		
500.0	499.7	500.0	500.0	1.0	1.0	-154.55	-2.6	-180.0	190.7	188.6	2.04	93.674		
600.0	599.3	596.9	596.9	1.3	1.2	-154.66	0.6	-182.2	201.0	198.5	2.50	80.516		
700.0	698.6	693.2	692.9	1.6	1.5	-154.46	5.7	-185.6	214.9	211.9	2.97	72.432		
800.0	797.5	788.7	788.0	1.9	1.7	-154.01	12.7	-190.4	232.5	229.1	3.45	67.316		
900.0	896.1	883.2	881.9	2.2	1.9	-153.37	21.6	-196.4	253.7	249.8	3.96	64.046		
1,000.0	994.2	976.5	974.3	2.6	2.2	-152.62	32.3	-203.6	278.5	274.0	4.49	61.971		
1,100.0	1,091.7	1,068.5	1,065.1	3.1	2.5	-151.79	44.7	-212.0	306.9	301.8	5.06	60.696		
1,200.0	1,188.6	1,162.3	1,157.3	3.5	2.8	-151.00	58.6	-221.4	338.3	332.7	5.65	59.863		
1,267.8	1,253.9	1,226.2	1,220.2	3.9	3.1	-150.61	68.2	-227.9	361.0	354.9	6.07	59.501		
1,300.0	1,284.9	1,256.4	1,250.0	4.1	3.2	-150.55	72.7	-231.0	372.0	365.7	6.27	59.342		
1,400.0	1,381.0	1,350.4	1,342.4	4.6	3.5	-150.36	86.7	-240.4	406.1	399.2	6.90	58.827		
1,500.0	1,477.1	1,444.4	1,434.9	5.2	3.9	-150.20	100.8	-249.9	440.2	432.6	7.55	58.305		
1,600.0	1,573.3	1,538.4	1,527.3	5.7	4.2	-150.07	114.8	-259.4	474.3	466.1	8.21	57.778		
1,700.0	1,669.4	1,632.4	1,619.8	6.3	4.6	-149.95	128.8	-268.9	508.4	499.5	8.87	57.294		
1,800.0	1,765.5	1,726.4	1,712.3	6.8	5.0	-149.85	142.9	-278.4	542.5	533.0	9.54	56.840		
1,900.0	1,861.6	1,820.4	1,804.7	7.4	5.3	-149.76	156.9	-287.9	576.6	566.4	10.22	56.419		
2,000.0	1,957.7	1,914.4	1,897.2	8.0	5.7	-149.68	171.0	-297.4	610.7	599.8	10.90	56.029		
2,100.0	2,053.8	2,008.4	1,989.6	8.5	6.1	-149.61	185.0	-306.9	644.9	633.3	11.58	55.669		
2,200.0	2,150.0	2,102.4	2,082.1	9.1	6.5	-149.54	199.0	-316.4	679.0	666.7	12.27	55.337		
2,300.0	2,246.1	2,196.4	2,174.5	9.7	6.8	-149.48	213.1	-325.9	713.1	700.2	12.96	55.030		
2,400.0	2,342.2	2,290.4	2,267.0	10.3	7.2	-149.43	227.1	-335.4	747.2	733.6	13.65	54.745		
2,500.0	2,438.3	2,384.4	2,359.4	10.8	7.6	-149.38	241.1	-344.9	781.4	767.0	14.34	54.482		
2,600.0	2,534.4	2,478.4	2,451.9	11.4	8.0	-149.34	255.2	-354.4	815.5	800.4	15.04	54.238		
2,700.0	2,630.6	2,572.4	2,544.4	12.0	8.3	-149.30	269.2	-363.9	849.6	833.9	15.73	54.010		
2,800.0	2,726.7	2,666.4	2,636.8	12.5	8.7	-149.26	283.3	-373.4	883.7	867.3	16.43	53.799		
2,900.0	2,822.8	2,760.4	2,729.3	13.1	9.1	-149.22	297.3	-382.9	917.8	900.7	17.12	53.601		
3,000.0	2,918.9	2,854.4	2,821.7	13.7	9.5	-149.19	311.3	-392.4	952.0	934.1	17.82	53.416		
3,100.0	3,015.0	2,948.4	2,914.2	14.3	9.8	-149.16	325.4	-401.9	986.1	967.6	18.52	53.243 SF		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 6J-203 - Wellbore #1 - Plan #1 (4-29-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	2.0	2.0	0.0	0.0	-90.00	0.0	-89.7	89.7	89.7	0.00	N/A		
100.0	100.0	102.0	102.0	0.1	0.1	-90.00	0.0	-89.7	89.7	89.4	0.23	391.059		
200.0	200.0	202.0	202.0	0.3	0.3	-90.00	0.0	-89.7	89.7	89.0	0.68	132.080 CC, ES		
300.0	300.0	302.0	302.0	0.6	0.6	-152.60	0.0	-89.7	90.8	89.7	1.13	80.514		
400.0	399.9	401.9	401.9	0.8	0.8	-153.68	0.0	-89.7	94.3	92.7	1.58	59.666		
500.0	499.7	501.7	501.7	1.0	1.0	-155.30	0.0	-89.7	100.2	98.2	2.04	49.151		
600.0	599.3	601.3	601.3	1.3	1.2	-157.27	0.0	-89.7	108.6	106.1	2.50	43.418		
700.0	698.6	700.6	700.6	1.6	1.5	-159.38	0.0	-89.7	119.5	116.6	2.97	40.293		
800.0	797.5	799.5	799.5	1.9	1.7	-161.49	0.0	-89.7	133.1	129.6	3.43	38.750		
900.0	896.1	898.1	898.1	2.2	1.9	-163.48	0.0	-89.7	149.3	145.4	3.90	38.239		
1,000.0	994.2	996.2	996.2	2.6	2.1	-165.30	0.0	-89.7	168.1	163.7	4.37	38.435		
1,100.0	1,091.7	1,093.7	1,093.7	3.1	2.3	-166.92	0.0	-89.7	189.5	184.7	4.84	39.133		
1,200.0	1,188.6	1,190.6	1,190.6	3.5	2.6	-168.33	0.0	-89.7	213.6	208.3	5.31	40.196		
1,267.8	1,253.9	1,258.0	1,258.0	3.9	2.7	-169.12	0.4	-89.5	231.2	225.5	5.64	41.011		
1,300.0	1,284.9	1,290.2	1,290.2	4.1	2.8	-169.41	1.0	-89.3	239.6	233.8	5.79	41.362		
1,400.0	1,381.0	1,390.9	1,390.9	4.6	3.0	-169.89	4.5	-88.1	264.6	258.3	6.28	42.150		
1,500.0	1,477.1	1,492.5	1,492.2	5.2	3.2	-169.83	10.6	-86.1	288.2	281.4	6.78	42.519		
1,600.0	1,573.3	1,594.7	1,594.0	5.7	3.5	-169.38	19.3	-83.2	310.2	302.9	7.29	42.528		
1,700.0	1,669.4	1,697.5	1,696.1	6.3	3.7	-168.58	30.7	-79.4	330.7	322.9	7.83	42.226		
1,800.0	1,765.5	1,800.8	1,798.3	6.8	4.0	-167.50	44.7	-74.8	349.8	341.4	8.40	41.648		
1,900.0	1,861.6	1,900.7	1,896.9	7.4	4.3	-166.29	60.3	-69.6	367.9	358.9	8.99	40.919		
2,000.0	1,957.7	1,998.8	1,993.6	8.0	4.6	-165.19	75.7	-64.4	386.0	376.4	9.60	40.210		
2,100.0	2,053.8	2,096.9	2,090.3	8.5	4.9	-164.18	91.2	-59.3	404.2	393.9	10.22	39.533		
2,200.0	2,150.0	2,195.0	2,187.1	9.1	5.2	-163.27	106.6	-54.1	422.5	411.6	10.86	38.891		
2,300.0	2,246.1	2,293.1	2,283.8	9.7	5.5	-162.43	122.1	-49.0	440.9	429.4	11.52	38.285		
2,400.0	2,342.2	2,391.2	2,380.5	10.3	5.8	-161.65	137.5	-43.8	459.4	447.2	12.18	37.715		
2,500.0	2,438.3	2,489.2	2,477.3	10.8	6.2	-160.94	153.0	-38.7	478.0	465.2	12.86	37.182		
2,600.0	2,534.4	2,587.3	2,574.0	11.4	6.5	-160.28	168.4	-33.5	496.7	483.1	13.54	36.682		
2,700.0	2,630.6	2,685.4	2,670.7	12.0	6.8	-159.67	183.9	-28.4	515.4	501.1	14.23	36.215		
2,800.0	2,726.7	2,783.5	2,767.4	12.5	7.2	-159.10	199.3	-23.3	534.1	519.2	14.93	35.778		
2,900.0	2,822.8	2,881.6	2,864.2	13.1	7.5	-158.57	214.7	-18.1	552.9	537.3	15.63	35.369		
3,000.0	2,918.9	2,979.7	2,960.9	13.7	7.9	-158.07	230.2	-13.0	571.8	555.5	16.34	34.987		
3,100.0	3,015.0	3,077.8	3,057.6	14.3	8.2	-157.61	245.6	-7.8	590.7	573.6	17.06	34.628		
3,200.0	3,111.1	3,175.9	3,154.4	14.8	8.6	-157.17	261.1	-2.7	609.6	591.8	17.78	34.292		
3,300.0	3,207.3	3,274.0	3,251.1	15.4	8.9	-156.76	276.5	2.5	628.6	610.1	18.50	33.977		
3,400.0	3,303.4	3,372.1	3,347.8	16.0	9.3	-156.38	292.0	7.6	647.6	628.3	19.23	33.680		
3,500.0	3,399.5	3,470.1	3,444.6	16.6	9.6	-156.01	307.4	12.8	666.6	646.6	19.96	33.401		
3,600.0	3,495.6	3,568.2	3,541.3	17.2	10.0	-155.67	322.8	17.9	685.6	664.9	20.69	33.139		
3,700.0	3,591.7	3,666.3	3,638.0	17.7	10.3	-155.34	338.3	23.0	704.7	683.3	21.42	32.891		
3,800.0	3,687.8	3,764.4	3,734.7	18.3	10.7	-155.04	353.7	28.2	723.8	701.6	22.16	32.657		
3,900.0	3,784.0	3,862.5	3,831.5	18.9	11.0	-154.74	369.2	33.3	742.9	720.0	22.90	32.436		
4,000.0	3,880.1	3,960.6	3,928.2	19.5	11.4	-154.47	384.6	38.5	762.0	738.3	23.64	32.227		
4,100.0	3,976.2	4,058.7	4,024.9	20.0	11.8	-154.20	400.1	43.6	781.1	756.7	24.39	32.028		
4,200.0	4,072.3	4,156.8	4,121.7	20.6	12.1	-153.95	415.5	48.8	800.3	775.1	25.13	31.840		
4,300.0	4,168.4	4,254.9	4,218.4	21.2	12.5	-153.71	430.9	53.9	819.4	793.6	25.88	31.662		
4,400.0	4,264.6	4,353.0	4,315.1	21.8	12.8	-153.48	446.4	59.1	838.6	812.0	26.63	31.492		
4,500.0	4,360.7	4,451.0	4,411.9	22.3	13.2	-153.27	461.8	64.2	857.8	830.4	27.38	31.330		
4,600.0	4,456.8	4,549.1	4,508.6	22.9	13.6	-153.06	477.3	69.4	877.0	848.9	28.13	31.176		
4,700.0	4,552.9	4,647.2	4,605.3	23.5	13.9	-152.86	492.7	74.5	896.2	867.3	28.88	31.030		
4,800.0	4,649.0	4,745.3	4,702.0	24.1	14.3	-152.67	508.2	79.6	915.4	885.8	29.64	30.889		
4,900.0	4,745.1	4,843.4	4,798.8	24.7	14.7	-152.48	523.6	84.8	934.7	904.3	30.39	30.755		

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6J-203 - Wellbore #1 - Plan #1 (4-29-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
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	4,841.3	4,941.5	4,895.5	25.2	15.0	-152.31	539.0	89.9	953.9	922.8	31.15	30.627		
5,100.0	4,937.4	5,039.6	4,992.2	25.8	15.4	-152.14	554.5	95.1	973.2	941.3	31.90	30.505		
5,200.0	5,033.5	5,137.7	5,089.0	26.4	15.8	-151.97	569.9	100.2	992.4	959.8	32.66	30.388 SF		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 6J-303 - Wellbore #1 - Plan #1 (4-29-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
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	1.0	1.0	0.0	0.0	-90.00	0.0	-58.8	58.8	58.8	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-58.8	58.8	58.6	0.23	259.174		
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-58.8	58.8	58.2	0.68	86.965 CC, ES		
300.0	300.0	301.0	301.0	0.6	0.6	-152.80	0.0	-58.8	60.0	58.9	1.13	53.297		
400.0	399.9	400.9	400.9	0.8	0.8	-154.40	0.0	-58.8	63.5	61.9	1.58	40.232		
500.0	499.7	500.7	500.7	1.0	1.0	-156.69	0.0	-58.8	69.5	67.4	2.04	34.101		
600.0	599.3	600.3	600.3	1.3	1.2	-159.31	0.0	-58.8	78.0	75.5	2.50	31.194		
700.0	698.6	699.6	699.6	1.6	1.5	-161.93	0.0	-58.8	89.1	86.1	2.96	30.051		
800.0	797.5	798.5	798.5	1.9	1.7	-164.35	0.0	-58.8	102.8	99.4	3.43	29.978		
900.0	896.1	899.5	899.5	2.2	1.9	-166.14	1.0	-58.1	118.2	114.3	3.89	30.361		
1,000.0	994.2	1,000.8	1,000.7	2.6	2.1	-167.04	4.2	-55.7	134.2	129.9	4.36	30.800		
1,100.0	1,091.7	1,102.4	1,102.0	3.1	2.4	-167.31	9.6	-51.7	150.7	145.9	4.83	31.194		
1,200.0	1,188.6	1,204.2	1,203.5	3.5	2.6	-167.15	17.2	-46.2	167.6	162.3	5.32	31.522		
1,267.8	1,253.9	1,273.5	1,272.3	3.9	2.8	-166.85	23.6	-41.5	179.4	173.7	5.66	31.692		
1,300.0	1,284.9	1,306.4	1,304.9	4.1	2.9	-166.67	27.0	-39.0	184.9	179.1	5.83	31.729		
1,400.0	1,381.0	1,409.2	1,406.6	4.6	3.1	-165.84	39.0	-30.1	200.7	194.3	6.37	31.504		
1,500.0	1,477.1	1,512.4	1,508.3	5.2	3.5	-164.66	53.3	-19.5	214.5	207.6	6.95	30.863		
1,600.0	1,573.3	1,614.7	1,608.5	5.7	3.8	-163.18	69.6	-7.6	226.5	218.9	7.57	29.919		
1,700.0	1,669.4	1,713.8	1,705.6	6.3	4.2	-161.78	85.9	4.4	238.1	229.9	8.22	28.976		
1,800.0	1,765.5	1,813.0	1,802.7	6.8	4.5	-160.52	102.2	16.4	249.9	241.0	8.89	28.121		
1,900.0	1,861.6	1,912.1	1,899.7	7.4	4.9	-159.37	118.5	28.4	261.7	252.2	9.58	27.327		
2,000.0	1,957.7	2,011.3	1,996.8	8.0	5.3	-158.32	134.8	40.4	273.7	263.4	10.29	26.604		
2,100.0	2,053.8	2,110.5	2,093.9	8.5	5.7	-157.35	151.0	52.4	285.7	274.7	11.01	25.945		
2,200.0	2,150.0	2,209.6	2,191.0	9.1	6.1	-156.47	167.3	64.4	297.8	286.1	11.75	25.344		
2,300.0	2,246.1	2,308.8	2,288.0	9.7	6.5	-155.65	183.6	76.4	310.0	297.5	12.50	24.795		
2,400.0	2,342.2	2,408.0	2,385.1	10.3	7.0	-154.90	199.9	88.4	322.3	309.0	13.27	24.293		
2,500.0	2,438.3	2,507.1	2,482.2	10.8	7.4	-154.20	216.2	100.4	334.5	320.5	14.04	23.834		
2,600.0	2,534.4	2,606.3	2,579.3	11.4	7.8	-153.55	232.5	112.4	346.9	332.1	14.82	23.413		
2,700.0	2,630.6	2,705.4	2,676.4	12.0	8.2	-152.94	248.8	124.4	359.3	343.6	15.60	23.026		
2,800.0	2,726.7	2,804.6	2,773.4	12.5	8.6	-152.38	265.1	136.4	371.7	355.3	16.39	22.669		
2,900.0	2,822.8	2,903.8	2,870.5	13.1	9.0	-151.85	281.4	148.4	384.1	366.9	17.19	22.340		
3,000.0	2,918.9	3,002.9	2,967.6	13.7	9.5	-151.35	297.7	160.4	396.6	378.6	18.00	22.036		
3,100.0	3,015.0	3,102.1	3,064.7	14.3	9.9	-150.89	314.0	172.4	409.1	390.3	18.80	21.754		
3,200.0	3,111.1	3,201.3	3,161.7	14.8	10.3	-150.45	330.3	184.4	421.6	402.0	19.62	21.492		
3,300.0	3,207.3	3,300.4	3,258.8	15.4	10.7	-150.04	346.5	196.4	434.2	413.7	20.43	21.249		
3,400.0	3,303.4	3,399.6	3,355.9	16.0	11.2	-149.65	362.8	208.4	446.7	425.5	21.25	21.021		
3,500.0	3,399.5	3,498.7	3,453.0	16.6	11.6	-149.28	379.1	220.4	459.3	437.2	22.07	20.809		
3,600.0	3,495.6	3,597.9	3,550.0	17.2	12.0	-148.94	395.4	232.4	471.9	449.0	22.90	20.610		
3,700.0	3,591.7	3,697.1	3,647.1	17.7	12.5	-148.61	411.7	244.4	484.5	460.8	23.72	20.424		
3,800.0	3,687.8	3,796.2	3,744.2	18.3	12.9	-148.29	428.0	256.4	497.2	472.6	24.55	20.249		
3,900.0	3,784.0	3,895.4	3,841.3	18.9	13.3	-147.99	444.3	268.4	509.8	484.4	25.38	20.084		
4,000.0	3,880.1	3,994.6	3,938.3	19.5	13.8	-147.71	460.6	280.4	522.5	496.3	26.22	19.929		
4,100.0	3,976.2	4,093.7	4,035.4	20.0	14.2	-147.44	476.9	292.4	535.2	508.1	27.05	19.783		
4,200.0	4,072.3	4,192.9	4,132.5	20.6	14.6	-147.18	493.2	304.4	547.9	520.0	27.89	19.644		
4,300.0	4,168.4	4,292.0	4,229.6	21.2	15.1	-146.94	509.5	316.4	560.6	531.8	28.73	19.514		
4,400.0	4,264.6	4,391.2	4,326.6	21.8	15.5	-146.70	525.7	328.4	573.3	543.7	29.57	19.390		
4,500.0	4,360.7	4,490.4	4,423.7	22.3	15.9	-146.48	542.0	340.4	586.0	555.6	30.41	19.272		
4,600.0	4,456.8	4,589.5	4,520.8	22.9	16.4	-146.26	558.3	352.4	598.7	567.5	31.25	19.160		
4,700.0	4,552.9	4,688.7	4,617.9	23.5	16.8	-146.06	574.6	364.4	611.4	579.3	32.09	19.054		
4,800.0	4,649.0	4,787.9	4,715.0	24.1	17.2	-145.86	590.9	376.4	624.2	591.2	32.93	18.953		
4,900.0	4,745.1	4,887.0	4,812.0	24.7	17.7	-145.67	607.2	388.4	636.9	603.1	33.78	18.856		

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 6J-303 - Wellbore #1 - Plan #1 (4-29-15)													Offset Well Error:	0.0 ft
Survey Program:		0-MWD												
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,841.3	4,986.2	4,909.1	25.2	18.1	-145.49	623.5	400.5	649.7	615.1	34.62	18.764		
5,100.0	4,937.4	5,085.3	5,006.2	25.8	18.5	-145.31	639.8	412.5	662.4	627.0	35.47	18.676		
5,200.0	5,033.5	5,184.5	5,103.3	26.4	19.0	-145.14	656.1	424.5	675.2	638.9	36.32	18.592		
5,300.0	5,129.6	5,283.7	5,200.3	27.0	19.4	-144.98	672.4	436.5	688.0	650.8	37.16	18.512		
5,400.0	5,225.7	5,382.8	5,297.4	27.5	19.8	-144.82	688.7	448.5	700.8	662.7	38.01	18.435		
5,500.0	5,321.9	5,482.0	5,394.5	28.1	20.3	-144.67	705.0	460.5	713.5	674.7	38.86	18.361		
5,600.0	5,418.0	5,572.6	5,483.3	28.7	20.6	-144.60	719.2	470.9	726.8	687.2	39.62	18.346		
5,700.0	5,514.1	5,660.4	5,569.9	29.3	20.9	-144.71	730.9	479.5	741.5	701.2	40.25	18.424		
5,800.0	5,610.2	5,747.7	5,656.4	29.8	21.1	-144.99	740.3	486.5	757.7	716.9	40.78	18.580		
5,900.0	5,706.3	5,834.3	5,742.5	30.4	21.3	-145.43	747.7	491.9	775.4	734.2	41.23	18.807		
6,000.0	5,802.4	5,920.0	5,828.0	31.0	21.5	-146.02	752.8	495.7	794.7	753.1	41.60	19.104		
6,100.0	5,898.6	6,000.0	5,907.9	31.6	21.6	-146.68	755.8	497.9	815.7	773.8	41.90	19.465		
6,200.0	5,994.7	6,092.1	6,000.0	32.2	21.7	-147.57	757.0	498.8	838.3	796.2	42.11	19.907		
6,215.5	6,009.6	6,102.6	6,010.6	32.2	21.8	-147.68	757.0	498.8	841.9	799.8	42.15	19.976		
6,300.0	6,091.1	6,184.2	6,092.1	32.7	21.9	-148.67	757.0	498.8	860.9	818.6	42.27	20.368		
6,400.0	6,188.4	6,281.5	6,189.4	33.1	22.0	-149.65	757.0	498.8	880.8	838.4	42.40	20.775		
6,500.0	6,286.5	6,379.6	6,287.5	33.4	22.1	-150.45	757.0	498.8	897.9	855.4	42.54	21.107		
6,600.0	6,385.2	6,478.2	6,386.2	33.7	22.3	-151.09	757.0	498.8	912.1	869.4	42.69	21.365		
6,700.0	6,484.3	6,577.4	6,485.3	33.9	22.4	-151.58	757.0	498.8	923.3	880.5	42.84	21.550		
6,800.0	6,583.9	6,677.0	6,584.9	34.1	22.5	-151.93	757.0	498.8	931.5	888.5	43.00	21.664		
6,900.0	6,683.7	6,776.8	6,684.7	34.3	22.7	-152.14	757.0	498.8	936.6	893.5	43.15	21.708		
7,000.0	6,783.7	6,876.8	6,784.7	34.4	22.8	-152.23	757.0	498.8	938.7	895.4	43.29	21.682		
7,016.3	6,800.0	6,893.1	6,801.0	34.4	22.8	-90.00	757.0	498.8	938.7	895.4	43.32	21.671		
7,100.0	6,883.7	6,976.8	6,884.7	34.5	22.9	-90.00	757.0	498.8	938.7	895.2	43.55	21.554		
7,167.6	6,951.3	7,044.4	6,952.3	34.5	23.0	-90.00	757.0	498.8	938.7	895.0	43.75	21.457		
7,204.5	6,988.2	7,081.3	6,989.2	34.6	23.1	-90.01	756.9	498.8	938.7	894.9	43.85	21.407		
7,250.0	7,033.7	7,126.8	7,034.6	34.6	23.1	89.95	754.9	498.8	938.7	894.8	43.92	21.373		
7,300.0	7,083.4	7,176.7	7,084.2	34.6	23.1	89.91	749.6	498.8	938.7	894.8	43.93	21.366		
7,350.0	7,132.8	7,226.5	7,133.4	34.6	23.1	89.86	741.0	498.8	938.7	894.8	43.89	21.389		
7,400.0	7,181.6	7,276.4	7,181.8	34.6	23.1	89.82	729.3	498.8	938.7	894.9	43.78	21.441		
7,450.0	7,229.5	7,326.2	7,229.3	34.5	23.0	89.78	714.4	498.8	938.7	895.1	43.62	21.520		
7,500.0	7,276.4	7,375.9	7,275.7	34.5	22.9	89.73	696.5	498.8	938.7	895.3	43.41	21.626		
7,550.0	7,322.0	7,425.6	7,320.8	34.4	22.8	89.69	675.7	498.8	938.7	895.6	43.15	21.754		
7,600.0	7,366.3	7,475.2	7,364.4	34.3	22.7	89.65	652.0	498.8	938.7	895.9	42.85	21.905		
7,650.0	7,408.9	7,524.8	7,406.3	34.2	22.5	89.61	625.5	498.8	938.7	896.2	42.53	22.073		
7,700.0	7,449.7	7,574.4	7,446.4	34.1	22.3	89.58	596.4	498.8	938.7	896.6	42.18	22.257		
7,750.0	7,488.5	7,623.9	7,484.5	33.9	22.2	89.54	564.8	498.8	938.7	896.9	41.81	22.451		
7,800.0	7,525.2	7,673.4	7,520.5	33.8	22.0	89.51	530.8	498.8	938.7	897.3	41.44	22.652		
7,850.0	7,559.6	7,722.9	7,554.1	33.6	21.8	89.48	494.6	498.8	938.7	897.7	41.08	22.854		
7,900.0	7,591.5	7,772.3	7,585.4	33.5	21.6	89.45	456.2	498.8	938.8	898.0	40.72	23.052		
7,950.0	7,620.9	7,821.7	7,614.0	33.3	21.4	89.42	416.0	498.8	938.8	898.4	40.40	23.239		
8,000.0	7,647.6	7,871.1	7,640.0	33.2	21.2	89.40	374.0	498.8	938.8	898.7	40.10	23.409		
8,050.0	7,671.4	7,920.4	7,663.2	33.0	21.0	89.38	330.5	498.8	938.8	898.9	39.85	23.557		
8,100.0	7,692.3	7,969.7	7,683.6	32.9	20.8	89.36	285.6	498.8	938.8	899.1	39.65	23.674		
8,150.0	7,710.2	8,019.1	7,701.0	32.7	20.6	89.34	239.4	498.8	938.8	899.3	39.52	23.756		
8,200.0	7,725.0	8,068.4	7,715.3	32.6	20.5	89.33	192.3	498.8	938.8	899.3	39.45	23.799		
8,250.0	7,736.6	8,117.6	7,726.7	32.5	20.3	89.32	144.3	498.8	938.8	899.3	39.45	23.797		
8,300.0	7,745.0	8,166.9	7,734.9	32.4	20.1	89.31	95.8	498.8	938.8	899.2	39.53	23.750		
8,350.0	7,750.2	8,216.2	7,739.9	32.3	20.0	89.31	46.8	498.8	938.8	899.1	39.69	23.655		
8,400.0	7,752.2	8,265.5	7,741.8	32.3	19.9	89.30	-2.5	498.8	938.8	898.9	39.92	23.517		
8,407.6	7,752.2	8,273.0	7,741.8	32.3	19.8	89.30	-10.0	498.8	938.8	898.8	39.96	23.493		

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6J-303 - Wellbore #1 - Plan #1 (4-29-15)		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					
8,500.0	7,751.8	8,365.3	7,741.3	32.2	19.6	89.30	-102.3	498.8	938.8	898.1	40.66	23.086					
8,600.0	7,751.4	8,465.3	7,740.8	32.3	20.3	89.29	-202.3	498.8	938.8	897.1	41.73	22.497					
8,700.0	7,751.0	8,565.3	7,740.3	32.5	21.2	89.28	-302.3	498.8	938.8	895.7	43.11	21.778					
8,800.0	7,750.6	8,665.3	7,739.7	32.8	22.2	89.28	-402.3	498.8	938.8	894.0	44.77	20.968					
8,900.0	7,750.2	8,765.3	7,739.2	33.2	23.3	89.27	-502.3	498.8	938.8	892.1	46.69	20.106					
9,000.0	7,749.8	8,865.3	7,738.7	33.7	24.5	89.26	-602.3	498.8	938.8	890.0	48.84	19.223					
9,100.0	7,749.4	8,965.3	7,738.2	34.4	25.7	89.25	-702.3	498.8	938.8	887.6	51.18	18.343					
9,200.0	7,749.0	9,065.3	7,737.6	35.1	27.1	89.25	-802.3	498.8	938.8	885.1	53.69	17.485					
9,300.0	7,748.6	9,165.3	7,737.1	36.0	28.4	89.24	-902.3	498.8	938.8	882.4	56.35	16.660					
9,400.0	7,748.2	9,265.3	7,736.6	37.0	29.9	89.23	-1,002.3	498.8	938.8	879.7	59.14	15.874					
9,500.0	7,747.8	9,365.3	7,736.1	38.1	31.4	89.22	-1,102.3	498.8	938.8	876.8	62.04	15.132					
9,600.0	7,747.4	9,465.3	7,735.5	39.3	32.9	89.22	-1,202.3	498.8	938.8	873.8	65.03	14.435					
9,700.0	7,747.0	9,565.3	7,735.0	40.5	34.5	89.21	-1,302.3	498.8	938.8	870.7	68.11	13.783					
9,800.0	7,746.6	9,665.3	7,734.5	41.8	36.1	89.20	-1,402.3	498.8	938.8	867.5	71.27	13.173					
9,900.0	7,746.2	9,765.3	7,734.0	43.2	37.7	89.19	-1,502.3	498.8	938.8	864.3	74.48	12.605					
10,000.0	7,745.8	9,865.3	7,733.4	44.6	39.3	89.19	-1,602.3	498.8	938.8	861.1	77.75	12.075					
10,100.0	7,745.4	9,965.3	7,732.9	46.0	41.0	89.18	-1,702.3	498.8	938.8	857.7	81.07	11.580					
10,200.0	7,745.0	10,065.3	7,732.4	47.5	42.7	89.17	-1,802.3	498.8	938.8	854.4	84.43	11.119					
10,300.0	7,744.6	10,165.3	7,731.9	49.0	44.4	89.16	-1,902.3	498.8	938.8	851.0	87.83	10.689					
10,400.0	7,744.2	10,265.3	7,731.4	50.5	46.1	89.16	-2,002.3	498.8	938.8	847.5	91.27	10.286					
10,500.0	7,743.8	10,365.3	7,730.8	52.1	47.9	89.15	-2,102.3	498.8	938.8	844.1	94.73	9.910					
10,600.0	7,743.4	10,465.3	7,730.3	53.7	49.6	89.14	-2,202.3	498.8	938.8	840.6	98.22	9.558					
10,700.0	7,743.0	10,565.3	7,729.8	55.3	51.4	89.13	-2,302.3	498.8	938.8	837.1	101.74	9.228					
10,800.0	7,742.6	10,665.3	7,729.3	56.9	53.1	89.13	-2,402.3	498.8	938.8	833.5	105.28	8.918					
10,900.0	7,742.2	10,765.3	7,728.7	58.6	54.9	89.12	-2,502.3	498.8	938.8	830.0	108.83	8.626					
11,000.0	7,741.8	10,865.3	7,728.2	60.2	56.7	89.11	-2,602.3	498.8	938.8	826.4	112.41	8.352					
11,100.0	7,741.4	10,965.3	7,727.7	61.9	58.5	89.10	-2,702.3	498.8	938.8	822.8	116.00	8.093					
11,200.0	7,741.0	11,065.3	7,727.2	63.6	60.3	89.10	-2,802.3	498.8	938.8	819.2	119.61	7.849					
11,300.0	7,740.6	11,165.3	7,726.6	65.3	62.1	89.09	-2,902.3	498.8	938.8	815.6	123.23	7.619					
11,400.0	7,740.2	11,265.3	7,726.1	67.0	63.9	89.08	-3,002.3	498.8	938.8	812.0	126.86	7.401					
11,500.0	7,739.8	11,365.3	7,725.6	68.8	65.8	89.07	-3,102.3	498.8	938.8	808.3	130.50	7.194					
11,600.0	7,739.4	11,465.3	7,725.1	70.5	67.6	89.07	-3,202.3	498.8	938.8	804.7	134.15	6.998					
11,700.0	7,739.0	11,565.3	7,724.5	72.2	69.4	89.06	-3,302.3	498.8	938.8	801.0	137.82	6.812					
11,800.0	7,738.6	11,665.3	7,724.0	74.0	71.3	89.05	-3,402.3	498.8	938.8	797.4	141.49	6.636					
11,900.0	7,738.2	11,765.3	7,723.5	75.7	73.1	89.04	-3,502.3	498.8	938.8	793.7	145.17	6.467					
12,000.0	7,737.8	11,865.3	7,723.0	77.5	74.9	89.04	-3,602.3	498.8	938.8	790.0	148.85	6.307					
12,100.0	7,737.4	11,965.3	7,722.5	79.3	76.8	89.03	-3,702.3	498.8	938.9	786.3	152.55	6.155					
12,153.0	7,737.1	12,018.3	7,722.2	80.2	77.8	89.03	-3,755.3	498.8	938.9	784.3	154.51	6.076					
12,189.8	7,737.0	12,052.3	7,722.0	80.9	78.4	89.02	-3,789.2	498.8	938.9	783.0	155.81	6.026 SF					

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6J-443 - Wellbore #1 - Plan #1 (4-29-15)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis			Distance						Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
0.0	0.0	2.0	2.0	0.0	0.0	-91.73	-3.6	-120.5	120.5	120.5	0.00	N/A					
100.0	100.0	102.0	102.0	0.1	0.1	-91.73	-3.6	-120.5	120.5	120.3	0.23	525.726					
200.0	200.0	202.0	202.0	0.3	0.3	-91.73	-3.6	-120.5	120.5	119.8	0.68	177.563 CC, ES					
300.0	300.0	302.0	302.0	0.6	0.6	-154.22	-3.6	-120.5	121.7	120.6	1.13	107.885					
400.0	399.9	401.9	401.9	0.8	0.8	-154.98	-3.6	-120.5	125.3	123.7	1.58	79.221					
500.0	499.7	501.7	501.7	1.0	1.0	-156.15	-3.6	-120.5	131.2	129.2	2.04	64.341					
600.0	599.3	601.3	601.3	1.3	1.2	-157.62	-3.6	-120.5	139.6	137.1	2.50	55.820					
700.0	698.6	700.6	700.6	1.6	1.5	-159.26	-3.6	-120.5	150.6	147.6	2.97	50.752					
800.0	797.5	799.5	799.5	1.9	1.7	-160.97	-3.6	-120.5	164.1	160.7	3.43	47.770					
900.0	896.1	898.1	898.1	2.2	1.9	-162.65	-3.6	-120.5	180.2	176.3	3.90	46.148					
1,000.0	994.2	996.2	996.2	2.6	2.1	-164.25	-3.6	-120.5	198.9	194.6	4.38	45.459					
1,100.0	1,091.7	1,093.7	1,093.7	3.1	2.3	-165.72	-3.6	-120.5	220.3	215.4	4.85	45.436					
1,200.0	1,188.6	1,190.6	1,190.6	3.5	2.6	-167.06	-3.6	-120.5	244.2	238.9	5.32	45.901					
1,267.8	1,253.9	1,255.9	1,255.9	3.9	2.7	-167.89	-3.6	-120.5	262.0	256.3	5.64	46.432					
1,300.0	1,284.9	1,286.9	1,286.9	4.1	2.8	-168.28	-3.6	-120.5	270.7	264.9	5.80	46.700					
1,400.0	1,381.0	1,383.0	1,383.0	4.6	3.0	-169.36	-3.6	-120.5	297.8	291.5	6.28	47.440					
1,500.0	1,477.1	1,479.1	1,479.1	5.2	3.2	-170.26	-3.6	-120.5	325.0	318.2	6.76	48.066					
1,600.0	1,573.3	1,575.3	1,575.3	5.7	3.4	-171.02	-3.6	-120.5	352.2	345.0	7.25	48.599					
1,700.0	1,669.4	1,673.3	1,673.3	6.3	3.6	-171.57	-2.9	-120.5	379.4	371.6	7.74	49.007					
1,800.0	1,765.5	1,772.5	1,772.4	6.8	3.9	-171.71	0.2	-120.8	405.8	397.6	8.24	49.250					
1,900.0	1,861.6	1,872.0	1,871.7	7.4	4.1	-171.49	6.0	-121.2	431.7	422.9	8.75	49.339					
2,000.0	1,957.7	1,971.7	1,971.1	8.0	4.3	-170.97	14.4	-121.8	456.8	447.6	9.27	49.280					
2,100.0	2,053.8	2,071.5	2,070.3	8.5	4.6	-170.19	25.3	-122.6	481.4	471.6	9.81	49.077					
2,200.0	2,150.0	2,171.3	2,169.1	9.1	4.8	-169.20	38.9	-123.6	505.5	495.1	10.37	48.738					
2,300.0	2,246.1	2,268.5	2,265.2	9.7	5.1	-168.14	53.7	-124.7	529.3	518.4	10.95	48.327					
2,400.0	2,342.2	2,365.2	2,360.7	10.3	5.3	-167.17	68.5	-125.8	553.3	541.8	11.55	47.908					
2,500.0	2,438.3	2,461.8	2,456.3	10.8	5.6	-166.28	83.3	-126.9	577.4	565.3	12.16	47.487					
2,600.0	2,534.4	2,558.5	2,551.8	11.4	5.9	-165.46	98.2	-128.0	601.7	588.9	12.78	47.072					
2,700.0	2,630.6	2,655.2	2,647.3	12.0	6.2	-164.71	113.0	-129.1	626.0	612.6	13.42	46.666					
2,800.0	2,726.7	2,751.8	2,742.8	12.5	6.5	-164.01	127.8	-130.2	650.5	636.4	14.06	46.272					
2,900.0	2,822.8	2,848.5	2,838.3	13.1	6.8	-163.36	142.6	-131.3	675.0	660.3	14.71	45.893					
3,000.0	2,918.9	2,945.2	2,933.9	13.7	7.1	-162.76	157.4	-132.4	699.6	684.3	15.37	45.529					
3,100.0	3,015.0	3,041.8	3,029.4	14.3	7.4	-162.20	172.2	-133.5	724.3	708.3	16.03	45.181					
3,200.0	3,111.1	3,138.5	3,124.9	14.8	7.7	-161.68	187.0	-134.6	749.0	732.3	16.70	44.848					
3,300.0	3,207.3	3,235.2	3,220.4	15.4	8.0	-161.18	201.8	-135.7	773.8	756.5	17.38	44.532					
3,400.0	3,303.4	3,331.9	3,316.0	16.0	8.3	-160.72	216.6	-136.8	798.7	780.6	18.06	44.230					
3,500.0	3,399.5	3,428.5	3,411.5	16.6	8.6	-160.29	231.4	-137.9	823.6	804.8	18.74	43.943					
3,600.0	3,495.6	3,525.2	3,507.0	17.2	9.0	-159.88	246.2	-139.0	848.5	829.1	19.43	43.671					
3,700.0	3,591.7	3,621.9	3,602.5	17.7	9.3	-159.50	261.0	-140.1	873.5	853.3	20.12	43.411					
3,800.0	3,687.8	3,718.5	3,698.1	18.3	9.6	-159.14	275.8	-141.1	898.5	877.7	20.82	43.164					
3,900.0	3,784.0	3,815.2	3,793.6	18.9	9.9	-158.79	290.6	-142.2	923.5	902.0	21.51	42.929					
4,000.0	3,880.1	3,911.9	3,889.1	19.5	10.3	-158.47	305.4	-143.3	948.6	926.4	22.21	42.706					
4,100.0	3,976.2	4,008.5	3,984.6	20.0	10.6	-158.16	320.3	-144.4	973.7	950.8	22.91	42.493					
4,200.0	4,072.3	4,105.2	4,080.1	20.6	10.9	-157.86	335.1	-145.5	998.8	975.2	23.62	42.290 SF					

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-30.8	30.8					
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-30.8	30.8	30.6	0.22	137.115		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-30.8	30.8	30.1	0.67	45.705 CC, ES		
300.0	300.0	300.0	300.0	0.6	0.6	-153.31	0.0	-30.8	32.0	30.9	1.12	28.466		
400.0	399.9	399.9	399.9	0.8	0.8	-156.14	0.0	-30.8	35.5	34.0	1.58	22.535		
500.0	499.7	500.7	500.7	1.0	1.0	-159.00	0.7	-29.7	40.4	38.4	2.03	19.929		
600.0	599.3	601.6	601.5	1.3	1.2	-161.00	2.8	-26.3	45.4	42.9	2.48	18.336		
700.0	698.6	702.6	702.3	1.6	1.5	-162.38	6.4	-20.7	50.5	47.6	2.93	17.211		
800.0	797.5	803.8	803.0	1.9	1.7	-163.29	11.3	-12.8	55.7	52.3	3.40	16.362		
900.0	896.1	905.1	903.6	2.2	2.0	-163.86	17.7	-2.6	60.9	57.0	3.88	15.681		
1,000.0	994.2	1,006.5	1,004.0	2.6	2.3	-164.16	25.6	9.9	66.1	61.7	4.38	15.106		
1,100.0	1,091.7	1,108.1	1,104.1	3.1	2.6	-164.25	34.8	24.6	71.3	66.5	4.89	14.600		
1,200.0	1,188.6	1,209.8	1,203.8	3.5	3.0	-164.17	45.5	41.6	76.6	71.2	5.42	14.137		
1,267.8	1,253.9	1,278.8	1,271.1	3.9	3.3	-164.04	53.5	54.4	80.2	74.4	5.80	13.838		
1,300.0	1,284.9	1,311.7	1,303.0	4.1	3.4	-163.94	57.6	60.9	81.8	75.8	5.98	13.673		
1,400.0	1,381.0	1,412.9	1,401.1	4.6	3.9	-163.27	70.9	82.1	85.2	78.6	6.58	12.940		
1,500.0	1,477.1	1,512.9	1,497.8	5.2	4.4	-162.52	84.4	103.5	88.1	80.9	7.20	12.229		
1,600.0	1,573.3	1,612.8	1,594.5	5.7	4.9	-161.83	97.9	124.9	91.0	83.2	7.84	11.606		
1,700.0	1,669.4	1,712.8	1,691.2	6.3	5.4	-161.17	111.3	146.4	93.9	85.4	8.49	11.058		
1,800.0	1,765.5	1,812.7	1,787.9	6.8	5.9	-160.56	124.8	167.8	96.9	87.7	9.16	10.574		
1,900.0	1,861.6	1,912.7	1,884.6	7.4	6.4	-159.98	138.2	189.2	99.8	90.0	9.84	10.145		
2,000.0	1,957.7	2,012.6	1,981.3	8.0	6.9	-159.44	151.7	210.6	102.8	92.2	10.53	9.762		
2,100.0	2,053.8	2,112.6	2,078.0	8.5	7.4	-158.93	165.1	232.0	105.7	94.5	11.23	9.419		
2,200.0	2,150.0	2,212.5	2,174.7	9.1	8.0	-158.44	178.6	253.4	108.7	96.8	11.93	9.110		
2,300.0	2,246.1	2,312.5	2,271.4	9.7	8.5	-157.98	192.0	274.9	111.7	99.0	12.65	8.831		
2,400.0	2,342.2	2,412.4	2,368.1	10.3	9.0	-157.55	205.5	296.3	114.7	101.3	13.37	8.578		
2,500.0	2,438.3	2,512.4	2,464.8	10.8	9.5	-157.13	219.0	317.7	117.7	103.6	14.10	8.347		
2,600.0	2,534.4	2,612.4	2,561.5	11.4	10.1	-156.74	232.4	339.1	120.7	105.8	14.83	8.136		
2,700.0	2,630.6	2,712.3	2,658.2	12.0	10.6	-156.37	245.9	360.5	123.7	108.1	15.57	7.942		
2,800.0	2,726.7	2,812.3	2,754.9	12.5	11.1	-156.01	259.3	381.9	126.7	110.4	16.32	7.764		
2,900.0	2,822.8	2,912.2	2,851.6	13.1	11.6	-155.67	272.8	403.4	129.7	112.6	17.07	7.599		
3,000.0	2,918.9	3,012.2	2,948.3	13.7	12.2	-155.35	286.2	424.8	132.7	114.9	17.82	7.447		
3,100.0	3,015.0	3,112.1	3,045.0	14.3	12.7	-155.04	299.7	446.2	135.8	117.2	18.58	7.306		
3,200.0	3,111.1	3,212.1	3,141.7	14.8	13.2	-154.74	313.1	467.6	138.8	119.4	19.34	7.175		
3,300.0	3,207.3	3,312.0	3,238.4	15.4	13.8	-154.46	326.6	489.0	141.8	121.7	20.11	7.052		
3,400.0	3,303.4	3,412.0	3,335.1	16.0	14.3	-154.19	340.1	510.4	144.9	124.0	20.88	6.938		
3,500.0	3,399.5	3,511.9	3,431.8	16.6	14.8	-153.93	353.5	531.9	147.9	126.2	21.65	6.831		
3,600.0	3,495.6	3,611.9	3,528.5	17.2	15.3	-153.68	367.0	553.3	150.9	128.5	22.43	6.730		
3,700.0	3,591.7	3,711.8	3,625.2	17.7	15.9	-153.44	380.4	574.7	154.0	130.8	23.20	6.636		
3,800.0	3,687.8	3,811.8	3,721.9	18.3	16.4	-153.21	393.9	596.1	157.0	133.0	23.98	6.547		
3,900.0	3,784.0	3,911.7	3,818.6	18.9	16.9	-152.99	407.3	617.5	160.1	135.3	24.77	6.463		
4,000.0	3,880.1	4,011.7	3,915.3	19.5	17.5	-152.77	420.8	638.9	163.1	137.6	25.55	6.384		
4,100.0	3,976.2	4,111.6	4,012.0	20.0	18.0	-152.57	434.2	660.4	166.2	139.8	26.34	6.310		
4,200.0	4,072.3	4,211.6	4,108.7	20.6	18.5	-152.37	447.7	681.8	169.2	142.1	27.13	6.239		
4,300.0	4,168.4	4,311.5	4,205.4	21.2	19.1	-152.18	461.2	703.2	172.3	144.4	27.92	6.172		
4,400.0	4,264.6	4,411.5	4,302.1	21.8	19.6	-151.99	474.6	724.6	175.4	146.6	28.71	6.108		
4,500.0	4,360.7	4,511.4	4,398.8	22.3	20.1	-151.82	488.1	746.0	178.4	148.9	29.50	6.047		
4,600.0	4,456.8	4,611.4	4,495.5	22.9	20.6	-151.64	501.5	767.5	181.5	151.2	30.30	5.989		
4,700.0	4,552.9	4,711.3	4,592.2	23.5	21.2	-151.48	515.0	788.9	184.5	153.4	31.10	5.934		
4,800.0	4,649.0	4,811.3	4,688.9	24.1	21.7	-151.32	528.4	810.3	187.6	155.7	31.90	5.882		
4,900.0	4,745.1	4,911.2	4,785.6	24.7	22.2	-151.16	541.9	831.7	190.7	158.0	32.70	5.832		

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,841.3	5,011.2	4,882.3	25.2	22.8	-151.01	555.3	853.1	193.7	160.2	33.50	5.784		
5,100.0	4,937.4	5,111.1	4,979.0	25.8	23.3	-150.86	568.8	874.5	196.8	162.5	34.30	5.738		
5,200.0	5,033.5	5,211.1	5,075.7	26.4	23.8	-150.72	582.2	896.0	199.9	164.8	35.10	5.694		
5,300.0	5,129.6	5,311.0	5,172.4	27.0	24.4	-150.58	595.7	917.4	203.0	167.1	35.91	5.652		
5,400.0	5,225.7	5,411.0	5,269.1	27.5	24.9	-150.45	609.2	938.8	206.0	169.3	36.71	5.612		
5,500.0	5,321.9	5,510.9	5,365.8	28.1	25.4	-150.32	622.6	960.2	209.1	171.6	37.52	5.573		
5,600.0	5,418.0	5,610.9	5,462.5	28.7	26.0	-150.19	636.1	981.6	212.2	173.9	38.33	5.536		
5,700.0	5,514.1	5,710.9	5,559.2	29.3	26.5	-150.07	649.5	1,003.0	215.3	176.1	39.14	5.500		
5,800.0	5,610.2	5,810.8	5,655.9	29.8	27.0	-149.95	663.0	1,024.5	218.3	178.4	39.95	5.466		
5,900.0	5,706.3	5,910.8	5,752.6	30.4	27.6	-149.84	676.4	1,045.9	221.4	180.7	40.76	5.433		
6,000.0	5,802.4	6,010.7	5,849.3	31.0	28.1	-149.73	689.9	1,067.3	224.5	182.9	41.57	5.401		
6,100.0	5,898.6	6,110.7	5,946.0	31.6	28.6	-149.62	703.3	1,088.7	227.6	185.2	42.38	5.370		
6,200.0	5,994.7	6,206.3	6,038.6	32.2	29.1	-149.62	715.8	1,108.6	231.3	188.2	43.09	5.368		
6,215.5	6,009.6	6,220.7	6,052.7	32.2	29.1	-149.66	717.6	1,111.4	232.1	188.9	43.18	5.376		
6,300.0	6,091.1	6,300.0	6,130.2	32.7	29.4	-149.93	726.5	1,125.6	236.5	193.0	43.59	5.427		
6,400.0	6,188.4	6,393.2	6,221.8	33.1	29.7	-150.26	735.6	1,140.1	241.5	197.5	43.97	5.492		
6,500.0	6,286.5	6,486.5	6,314.1	33.4	30.0	-150.59	743.1	1,152.0	246.1	201.8	44.28	5.559		
6,600.0	6,385.2	6,579.7	6,406.6	33.7	30.2	-150.93	749.0	1,161.3	250.4	205.9	44.50	5.628		
6,700.0	6,484.3	6,672.7	6,499.3	33.9	30.4	-151.27	753.3	1,168.1	254.4	209.8	44.64	5.698		
6,800.0	6,583.9	6,765.7	6,592.1	34.1	30.5	-151.62	755.9	1,172.4	258.0	213.3	44.71	5.771		
6,900.0	6,683.7	6,858.5	6,684.9	34.3	30.6	-151.98	757.0	1,174.1	261.3	216.6	44.70	5.847		
7,000.0	6,783.7	6,957.3	6,783.7	34.4	30.7	-152.22	757.0	1,174.1	263.4	218.7	44.70	5.892		
7,016.3	6,800.0	6,973.6	6,800.0	34.4	30.8	-90.00	757.0	1,174.1	263.4	218.7	44.71	5.891		
7,100.0	6,883.7	7,057.3	6,883.7	34.5	30.8	-90.00	757.0	1,174.1	263.4	218.5	44.93	5.862		
7,142.5	6,926.2	7,099.8	6,926.1	34.5	30.9	-90.05	756.8	1,174.1	263.4	218.4	45.02	5.850		
7,204.5	6,988.2	7,161.6	6,987.8	34.6	30.9	-90.90	752.8	1,174.1	263.4	218.7	44.74	5.888		
7,250.0	7,033.7	7,206.4	7,032.2	34.6	30.9	88.08	746.9	1,174.1	263.5	219.2	44.30	5.949		
7,300.0	7,083.4	7,255.4	7,080.3	34.6	30.9	86.97	737.4	1,174.1	263.8	220.0	43.77	6.027		
7,350.0	7,132.8	7,304.1	7,127.3	34.6	30.9	85.88	724.9	1,174.1	264.1	220.9	43.21	6.112		
7,400.0	7,181.6	7,352.5	7,173.2	34.6	30.8	84.81	709.6	1,174.1	264.5	221.9	42.62	6.206		
7,450.0	7,229.5	7,400.0	7,217.3	34.5	30.7	83.78	691.7	1,174.1	265.0	222.9	42.03	6.304		
7,500.0	7,276.4	7,448.4	7,260.9	34.5	30.6	82.76	670.8	1,174.1	265.5	224.1	41.43	6.410		
7,550.0	7,322.0	7,496.0	7,302.4	34.4	30.5	81.79	647.5	1,174.1	266.1	225.3	40.84	6.518		
7,600.0	7,366.3	7,543.3	7,342.1	34.3	30.4	80.85	621.9	1,174.1	266.8	226.6	40.26	6.628		
7,650.0	7,408.9	7,590.3	7,380.0	34.2	30.3	79.96	594.0	1,174.1	267.5	227.8	39.70	6.738		
7,700.0	7,449.7	7,637.2	7,415.9	34.1	30.1	79.12	563.9	1,174.1	268.2	229.1	39.17	6.849		
7,750.0	7,488.5	7,683.8	7,449.8	33.9	30.0	78.32	531.9	1,174.1	269.0	230.3	38.66	6.957		
7,800.0	7,525.2	7,730.3	7,481.6	33.8	29.8	77.58	498.0	1,174.1	269.7	231.5	38.19	7.063		
7,850.0	7,559.6	7,776.5	7,511.1	33.6	29.7	76.88	462.4	1,174.1	270.5	232.7	37.76	7.163		
7,900.0	7,591.5	7,822.6	7,538.3	33.5	29.5	76.24	425.2	1,174.1	271.2	233.8	37.37	7.257		
7,950.0	7,620.9	7,868.6	7,563.1	33.3	29.3	75.66	386.5	1,174.1	271.9	234.9	37.02	7.343		
8,000.0	7,647.6	7,914.4	7,585.5	33.2	29.2	75.14	346.6	1,174.1	272.5	235.8	36.73	7.420		
8,050.0	7,671.4	7,960.1	7,605.4	33.0	29.0	74.67	305.5	1,174.1	273.1	236.6	36.49	7.485		
8,100.0	7,692.3	8,005.7	7,622.8	32.9	28.9	74.27	263.3	1,174.1	273.7	237.4	36.31	7.538		
8,150.0	7,710.2	8,050.0	7,637.3	32.7	28.8	73.93	221.4	1,174.1	274.1	237.9	36.19	7.576		
8,200.0	7,725.0	8,096.6	7,649.9	32.6	28.6	73.64	176.6	1,174.1	274.5	238.4	36.13	7.598		
8,250.0	7,736.6	8,141.9	7,659.4	32.5	28.5	73.41	132.3	1,174.1	274.8	238.7	36.15	7.603		
8,300.0	7,745.0	8,187.3	7,666.4	32.4	28.4	73.25	87.5	1,174.1	275.1	238.8	36.23	7.592		
8,350.0	7,750.2	8,232.5	7,670.6	32.3	28.4	73.15	42.4	1,174.1	275.2	238.8	36.39	7.564		
8,400.0	7,752.2	8,277.8	7,672.2	32.3	28.3	73.11	-2.8	1,174.1	275.3	238.7	36.61	7.519		
8,407.6	7,752.2	8,284.7	7,672.2	32.3	28.3	73.11	-9.7	1,174.1	275.3	238.6	36.65	7.511		

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	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		
8,407.9	7,752.2	8,285.0	7,672.2	32.3	28.3	73.11	-10.0	1,174.1	275.3	238.6	36.65	7.511		
8,500.0	7,751.8	8,376.5	7,671.2	32.2	28.3	72.99	-101.5	1,174.1	275.4	238.3	37.11	7.423		
8,600.0	7,751.4	8,476.5	7,670.1	32.3	28.3	72.85	-201.5	1,174.1	275.7	237.7	37.93	7.267		
8,700.0	7,751.0	8,576.5	7,669.0	32.5	28.5	72.70	-301.5	1,174.1	275.9	236.8	39.08	7.060		
8,800.0	7,750.6	8,676.5	7,667.9	32.8	28.9	72.56	-401.5	1,174.1	276.1	235.6	40.52	6.813		
8,900.0	7,750.2	8,776.5	7,666.8	33.2	29.4	72.42	-501.5	1,174.1	276.3	234.1	42.23	6.542		
9,000.0	7,749.8	8,876.5	7,665.6	33.7	30.1	72.28	-601.4	1,174.1	276.5	232.3	44.18	6.259		
9,100.0	7,749.4	8,976.5	7,664.5	34.4	30.9	72.14	-701.4	1,174.1	276.7	230.4	46.32	5.974		
9,200.0	7,749.0	9,076.5	7,663.4	35.1	31.9	72.00	-801.4	1,174.1	277.0	228.3	48.65	5.693		
9,300.0	7,748.6	9,176.5	7,662.3	36.0	33.0	71.86	-901.4	1,174.1	277.2	226.1	51.12	5.422		
9,400.0	7,748.2	9,276.5	7,661.2	37.0	34.1	71.72	-1,001.4	1,174.1	277.4	223.7	53.72	5.164		
9,500.0	7,747.8	9,376.5	7,660.1	38.1	35.4	71.58	-1,101.4	1,174.1	277.6	221.2	56.43	4.920		
9,600.0	7,747.4	9,476.5	7,658.9	39.3	36.7	71.44	-1,201.4	1,174.1	277.9	218.6	59.24	4.690		
9,700.0	7,747.0	9,576.4	7,657.8	40.5	38.1	71.30	-1,301.4	1,174.1	278.1	216.0	62.12	4.476		
9,800.0	7,746.6	9,676.4	7,656.7	41.8	39.5	71.16	-1,401.4	1,174.1	278.3	213.2	65.08	4.277		
9,900.0	7,746.2	9,776.4	7,655.6	43.2	40.9	71.02	-1,501.4	1,174.1	278.5	210.5	68.09	4.091		
10,000.0	7,745.8	9,876.4	7,654.5	44.6	42.4	70.88	-1,601.4	1,174.1	278.8	207.6	71.15	3.918		
10,100.0	7,745.4	9,976.4	7,653.4	46.0	44.0	70.74	-1,701.4	1,174.1	279.0	204.8	74.26	3.757		
10,200.0	7,745.0	10,076.4	7,652.2	47.5	45.5	70.60	-1,801.3	1,174.1	279.3	201.9	77.40	3.608		
10,300.0	7,744.6	10,176.4	7,651.1	49.0	47.1	70.46	-1,901.3	1,174.1	279.5	198.9	80.58	3.469		
10,400.0	7,744.2	10,276.4	7,650.0	50.5	48.7	70.32	-2,001.3	1,174.1	279.7	196.0	83.78	3.339		
10,500.0	7,743.8	10,376.4	7,648.9	52.1	50.4	70.19	-2,101.3	1,174.1	280.0	193.0	87.01	3.218		
10,600.0	7,743.4	10,476.4	7,647.8	53.7	52.0	70.05	-2,201.3	1,174.1	280.2	190.0	90.26	3.105		
10,700.0	7,743.0	10,576.4	7,646.7	55.3	53.7	69.91	-2,301.3	1,174.1	280.5	186.9	93.53	2.999		
10,800.0	7,742.6	10,676.4	7,645.5	56.9	55.4	69.77	-2,401.3	1,174.1	280.7	183.9	96.81	2.900		
10,900.0	7,742.2	10,776.4	7,644.4	58.6	57.1	69.64	-2,501.3	1,174.1	281.0	180.9	100.10	2.807		
11,000.0	7,741.8	10,876.4	7,643.3	60.2	58.8	69.50	-2,601.3	1,174.1	281.2	177.8	103.41	2.719		
11,100.0	7,741.4	10,976.4	7,642.2	61.9	60.5	69.36	-2,701.3	1,174.1	281.5	174.7	106.73	2.637		
11,200.0	7,741.0	11,076.4	7,641.1	63.6	62.3	69.23	-2,801.3	1,174.1	281.7	171.7	110.05	2.560		
11,300.0	7,740.6	11,176.4	7,640.0	65.3	64.0	69.09	-2,901.2	1,174.1	282.0	168.6	113.39	2.487		
11,400.0	7,740.2	11,276.4	7,638.8	67.0	65.8	68.96	-3,001.2	1,174.1	282.2	165.5	116.73	2.418		
11,500.0	7,739.8	11,376.4	7,637.7	68.8	67.5	68.82	-3,101.2	1,174.1	282.5	162.4	120.07	2.353		
11,600.0	7,739.4	11,476.4	7,636.6	70.5	69.3	68.69	-3,201.2	1,174.1	282.7	159.3	123.42	2.291		
11,700.0	7,739.0	11,576.4	7,635.5	72.2	71.1	68.55	-3,301.2	1,174.1	283.0	156.2	126.77	2.232		
11,800.0	7,738.6	11,676.4	7,634.4	74.0	72.8	68.42	-3,401.2	1,174.1	283.3	153.1	130.12	2.177		
11,900.0	7,738.2	11,776.4	7,633.3	75.7	74.6	68.28	-3,501.2	1,174.1	283.5	150.1	133.48	2.124		
12,000.0	7,737.8	11,876.4	7,632.1	77.5	76.4	68.15	-3,601.2	1,174.1	283.8	147.0	136.83	2.074		
12,100.0	7,737.4	11,976.4	7,631.0	79.3	78.2	68.01	-3,701.2	1,174.1	284.1	143.9	140.19	2.026		
12,189.8	7,737.0	12,066.2	7,630.0	80.9	79.9	67.89	-3,791.0	1,174.1	284.3	141.1	143.20	1.985 SF		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T1S-R67W - Corcilus 1 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 5060-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
700.0	698.6	671.6	671.6	1.6	13.4	18.66	174.9	1,008.6	992.6	977.8	14.82	66.999	
800.0	797.5	770.5	770.5	1.9	15.4	19.00	174.9	1,008.6	979.0	962.0	16.97	57.675	
900.0	896.1	869.1	869.1	2.2	17.4	19.41	174.9	1,008.6	963.0	943.9	19.11	50.387	
1,000.0	994.2	967.2	967.2	2.6	19.3	19.90	174.9	1,008.6	944.6	923.4	21.23	44.503	
1,100.0	1,091.7	1,064.7	1,064.7	3.1	21.3	20.47	174.9	1,008.6	923.8	900.5	23.31	39.625	
1,200.0	1,188.6	1,161.6	1,161.6	3.5	23.2	21.15	174.9	1,008.6	900.7	875.3	25.38	35.493	
1,267.8	1,253.9	1,226.9	1,226.9	3.9	24.5	21.66	174.9	1,008.6	883.8	857.0	26.76	33.023	
1,300.0	1,284.9	1,257.9	1,257.9	4.1	25.2	21.88	174.9	1,008.6	875.5	848.0	27.47	31.874	
1,400.0	1,381.0	1,354.0	1,354.0	4.6	27.1	22.57	174.9	1,008.6	849.8	820.1	29.66	28.648	
1,500.0	1,477.1	1,450.1	1,450.1	5.2	29.0	23.30	174.9	1,008.6	824.2	792.4	31.87	25.859	
1,600.0	1,573.3	1,546.3	1,546.3	5.7	30.9	24.08	174.9	1,008.6	798.8	764.7	34.10	23.427	
1,700.0	1,669.4	1,642.4	1,642.4	6.3	32.8	24.90	174.9	1,008.6	773.5	737.2	36.34	21.288	
1,800.0	1,765.5	1,738.5	1,738.5	6.8	34.8	25.79	174.9	1,008.6	748.4	709.8	38.59	19.394	
1,900.0	1,861.6	1,834.6	1,834.6	7.4	36.7	26.73	174.9	1,008.6	723.5	682.6	40.86	17.706	
2,000.0	1,957.7	1,930.7	1,930.7	8.0	38.6	27.74	174.9	1,008.6	698.7	655.6	43.15	16.194	
2,100.0	2,053.8	2,026.8	2,026.8	8.5	40.5	28.82	174.9	1,008.6	674.2	628.8	45.46	14.833	
2,200.0	2,150.0	2,123.0	2,123.0	9.1	42.5	29.98	174.9	1,008.6	650.0	602.2	47.79	13.602	
2,300.0	2,246.1	2,219.1	2,219.1	9.7	44.4	31.23	174.9	1,008.6	626.0	575.9	50.14	12.485	
2,400.0	2,342.2	2,315.2	2,315.2	10.3	46.3	32.58	174.9	1,008.6	602.3	549.8	52.52	11.468	
2,500.0	2,438.3	2,411.3	2,411.3	10.8	48.2	34.03	174.9	1,008.6	579.0	524.1	54.93	10.540	
2,600.0	2,534.4	2,507.4	2,507.4	11.4	50.1	35.60	174.9	1,008.6	556.0	498.7	57.38	9.691	
2,700.0	2,630.6	2,603.6	2,603.6	12.0	52.1	37.30	174.9	1,008.6	533.5	473.7	59.86	8.913	
2,800.0	2,726.7	2,699.7	2,699.7	12.5	54.0	39.15	174.9	1,008.6	511.5	449.2	62.38	8.200	
2,900.0	2,822.8	2,795.8	2,795.8	13.1	55.9	41.15	174.9	1,008.6	490.1	425.2	64.95	7.546	
3,000.0	2,918.9	2,891.9	2,891.9	13.7	57.8	43.33	174.9	1,008.6	469.3	401.7	67.56	6.946	
3,100.0	3,015.0	2,988.0	2,988.0	14.3	59.8	45.70	174.9	1,008.6	449.3	379.0	70.23	6.397	
3,200.0	3,111.1	3,084.1	3,084.1	14.8	61.7	48.27	174.9	1,008.6	430.0	357.1	72.95	5.895	
3,300.0	3,207.3	3,180.3	3,180.3	15.4	63.6	51.07	174.9	1,008.6	411.8	336.0	75.73	5.437	
3,400.0	3,303.4	3,276.4	3,276.4	16.0	65.5	54.11	174.9	1,008.6	394.6	316.0	78.56	5.023	
3,500.0	3,399.5	3,372.5	3,372.5	16.6	67.4	57.40	174.9	1,008.6	378.6	297.2	81.44	4.649	
3,600.0	3,495.6	3,468.6	3,468.6	17.2	69.4	60.95	174.9	1,008.6	364.1	279.7	84.35	4.316	
3,700.0	3,591.7	3,564.7	3,564.7	17.7	71.3	64.77	174.9	1,008.6	351.1	263.8	87.29	4.022	
3,800.0	3,687.8	3,660.8	3,660.8	18.3	73.2	68.84	174.9	1,008.6	339.8	249.6	90.23	3.766	
3,900.0	3,784.0	3,757.0	3,757.0	18.9	75.1	73.14	174.9	1,008.6	330.5	237.4	93.15	3.548	
4,000.0	3,880.1	3,853.1	3,853.1	19.5	77.1	77.66	174.9	1,008.6	323.3	227.3	96.02	3.367	
4,100.0	3,976.2	3,949.2	3,949.2	20.0	79.0	82.33	174.9	1,008.6	318.3	219.5	98.80	3.222	
4,200.0	4,072.3	4,045.3	4,045.3	20.6	80.9	87.10	174.9	1,008.6	315.7	214.2	101.47	3.111	
4,260.1	4,130.1	4,103.1	4,103.1	21.0	82.1	90.00	174.9	1,008.6	315.2	212.2	103.02	3.060 CC	
4,300.0	4,168.4	4,141.4	4,141.4	21.2	82.8	91.92	174.9	1,008.6	315.4	211.4	104.01	3.033	
4,400.0	4,264.6	4,237.6	4,237.6	21.8	84.8	96.71	174.9	1,008.6	317.6	211.2	106.40	2.985 ES	
4,500.0	4,360.7	4,333.7	4,333.7	22.3	86.7	101.41	174.9	1,008.6	322.1	213.5	108.64	2.965 SF	
4,600.0	4,456.8	4,429.8	4,429.8	22.9	88.6	105.96	174.9	1,008.6	328.9	218.2	110.73	2.970	
4,700.0	4,552.9	4,525.9	4,525.9	23.5	90.5	110.31	174.9	1,008.6	337.8	225.1	112.70	2.997	
4,800.0	4,649.0	4,622.0	4,622.0	24.1	92.4	114.43	174.9	1,008.6	348.7	234.1	114.56	3.043	
4,900.0	4,745.1	4,718.1	4,718.1	24.7	94.4	118.30	174.9	1,008.6	361.3	245.0	116.34	3.106	
5,000.0	4,841.3	4,814.3	4,814.3	25.2	96.3	121.90	174.9	1,008.6	375.6	257.5	118.06	3.181	
5,100.0	4,937.4	4,910.4	4,910.4	25.8	98.2	125.25	174.9	1,008.6	391.2	271.5	119.74	3.267	
5,200.0	5,033.5	5,006.5	5,006.5	26.4	100.1	128.34	174.9	1,008.6	408.2	286.8	121.40	3.362	
5,300.0	5,129.6	5,060.0	5,060.0	27.0	101.2	129.95	174.9	1,008.6	428.4	305.8	122.54	3.496	
5,400.0	5,225.7	5,060.0	5,060.0	27.5	101.2	129.95	174.9	1,008.6	466.4	343.4	123.02	3.791	
5,500.0	5,321.9	5,060.0	5,060.0	28.1	101.2	129.95	174.9	1,008.6	521.1	397.6	123.51	4.219	

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T1S-R67W - Corcilius 1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 5060-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,600.0	5,418.0	5,060.0	5,060.0	28.7	101.2	129.95	174.9	1,008.6	587.9	463.9	124.00	4.741		
5,700.0	5,514.1	5,060.0	5,060.0	29.3	101.2	129.95	174.9	1,008.6	663.0	538.6	124.48	5.326		
5,800.0	5,610.2	5,060.0	5,060.0	29.8	101.2	129.95	174.9	1,008.6	744.1	619.1	124.97	5.954		
5,900.0	5,706.3	5,060.0	5,060.0	30.4	101.2	129.95	174.9	1,008.6	829.3	703.8	125.46	6.610		
6,000.0	5,802.4	5,060.0	5,060.0	31.0	101.2	129.95	174.9	1,008.6	917.4	791.5	125.94	7.285		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T1S-R67W - Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												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	-70.26	193.1	-537.9	571.5				
100.0	100.0	91.1	91.1	0.1	0.1	-70.29	192.9	-538.4	571.9	571.7	0.23	2,447.392	
200.0	200.0	192.1	192.1	0.3	0.4	-70.37	192.4	-539.4	572.7	572.0	0.71	803.666	
300.0	300.0	294.5	294.5	0.6	0.6	-132.77	191.7	-540.2	574.1	572.9	1.20	478.788	
400.0	399.9	394.1	394.1	0.8	0.9	-133.09	191.2	-540.7	577.1	575.4	1.68	343.043	
500.0	499.7	490.6	490.5	1.0	1.1	-133.54	190.9	-541.4	582.1	580.0	2.16	269.658	
600.0	599.3	588.1	588.1	1.3	1.4	-134.13	190.8	-542.5	589.6	586.9	2.65	222.808	
700.0	698.6	688.1	688.0	1.6	1.6	-134.93	190.3	-543.9	599.0	595.8	3.16	189.540	
800.0	797.5	788.7	788.6	1.9	1.9	-135.92	189.1	-545.3	610.2	606.5	3.69	165.342	
900.0	896.1	887.2	887.1	2.2	2.2	-137.02	187.6	-546.5	623.4	619.2	4.23	147.425	
1,000.0	994.2	985.3	985.2	2.6	2.4	-138.19	186.3	-547.6	638.7	633.9	4.78	133.558	
1,100.0	1,091.7	1,081.2	1,081.1	3.1	2.7	-139.38	185.3	-548.7	656.4	651.0	5.35	122.718	
1,200.0	1,188.6	1,177.1	1,177.0	3.5	2.9	-140.59	184.6	-549.9	676.5	670.6	5.93	114.112	
1,267.8	1,253.9	1,242.4	1,242.3	3.9	3.1	-141.43	184.3	-550.7	691.6	685.3	6.33	109.262	
1,300.0	1,284.9	1,273.5	1,273.4	4.1	3.2	-141.90	184.1	-551.1	699.0	692.5	6.52	107.154	
1,400.0	1,381.0	1,369.9	1,369.8	4.6	3.4	-143.30	183.5	-552.2	722.3	715.1	7.12	101.389	
1,500.0	1,477.1	1,467.1	1,466.9	5.2	3.7	-144.63	182.8	-553.2	745.8	738.1	7.72	96.585	
1,600.0	1,573.3	1,561.7	1,561.6	5.7	3.9	-145.84	182.2	-554.0	769.6	761.3	8.31	92.628	
1,700.0	1,669.4	1,656.2	1,656.1	6.3	4.2	-146.97	181.8	-555.1	793.9	785.1	8.89	89.355	
1,800.0	1,765.5	1,751.0	1,750.9	6.8	4.4	-148.01	181.7	-556.3	818.7	809.2	9.45	86.622	
1,900.0	1,861.6	1,845.0	1,844.9	7.4	4.6	-148.98	181.8	-557.6	843.8	833.8	10.00	84.347	
2,000.0	1,957.7	1,939.3	1,939.1	8.0	4.9	-149.88	182.0	-559.1	869.4	858.8	10.55	82.407	
2,100.0	2,053.8	2,034.0	2,033.8	8.5	5.1	-150.74	182.2	-560.7	895.3	884.2	11.09	80.708	
2,200.0	2,150.0	2,127.8	2,127.5	9.1	5.3	-151.54	182.4	-562.5	921.5	909.8	11.63	79.207	
2,300.0	2,246.1	2,220.9	2,220.7	9.7	5.6	-152.30	182.5	-564.5	948.1	936.0	12.18	77.868	
2,400.0	2,342.2	2,315.9	2,315.7	10.3	5.8	-153.05	182.5	-566.7	975.1	962.3	12.72	76.638 SF	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Well Sec.6-T1S-R67W - Sack 22-6 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													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	146.51	-520.9	344.6	624.9					
100.0	100.0	85.2	85.2	0.1	0.1	146.55	-521.0	344.1	624.4	624.2	0.23	2,765.901		
200.0	200.0	183.0	183.0	0.3	0.4	146.65	-521.3	343.0	624.0	623.3	0.69	907.519		
300.0	300.0	283.0	282.9	0.6	0.6	84.61	-521.5	342.4	623.8	622.6	1.17	533.359		
400.0	399.9	384.5	384.5	0.8	0.9	85.03	-521.5	341.9	623.1	621.5	1.65	376.808		
500.0	499.7	483.4	483.4	1.0	1.1	85.67	-521.5	341.3	622.2	620.1	2.15	289.846		
600.0	599.3	582.7	582.7	1.3	1.4	86.56	-521.5	340.8	621.4	618.7	2.66	233.965		
700.0	698.6	683.2	683.1	1.6	1.6	87.67	-521.3	340.6	620.5	617.3	3.16	196.117		
800.0	797.5	783.7	783.7	1.9	1.8	89.02	-520.8	340.3	619.5	615.8	3.70	167.558		
900.0	896.1	882.2	882.1	2.2	2.1	90.60	-520.4	339.7	618.7	614.5	4.29	144.244		
955.6	950.7	936.0	936.0	2.4	2.2	91.57	-520.2	339.3	618.6	614.0	4.65	133.127 CC		
1,000.0	994.2	978.8	978.8	2.6	2.3	92.39	-520.1	339.0	618.7	613.8	4.93	125.395 ES		
1,100.0	1,091.7	1,076.3	1,076.3	3.1	2.6	94.40	-519.9	338.5	619.6	614.0	5.62	110.212		
1,200.0	1,188.6	1,176.7	1,176.7	3.5	2.8	96.66	-519.4	338.1	621.4	615.1	6.33	98.146		
1,267.8	1,253.9	1,244.0	1,243.9	3.9	2.9	98.27	-518.6	337.9	623.1	616.2	6.82	91.424		
1,300.0	1,284.9	1,275.6	1,275.6	4.1	3.0	99.06	-518.2	337.9	624.0	617.0	7.05	88.569		
1,400.0	1,381.0	1,374.1	1,374.0	4.6	3.2	101.49	-516.7	337.6	627.5	619.7	7.77	80.760		
1,500.0	1,477.1	1,471.5	1,471.5	5.2	3.4	103.88	-514.9	337.1	631.8	623.3	8.51	74.280		
1,600.0	1,573.3	1,569.8	1,569.7	5.7	3.6	106.28	-513.0	336.3	637.1	627.9	9.25	68.881		
1,700.0	1,669.4	1,667.9	1,667.8	6.3	3.9	108.64	-510.7	335.4	643.2	633.2	9.99	64.391		
1,800.0	1,765.5	1,765.0	1,764.8	6.8	4.1	110.94	-508.3	334.3	650.2	639.5	10.72	60.666		
1,900.0	1,861.6	1,860.9	1,860.7	7.4	4.4	113.18	-505.8	333.1	658.2	646.7	11.43	57.560		
2,000.0	1,957.7	1,955.0	1,954.8	8.0	4.6	115.36	-503.6	331.6	667.3	655.2	12.14	54.976		
2,100.0	2,053.8	2,047.8	2,047.6	8.5	4.9	117.47	-501.8	329.8	678.0	665.1	12.83	52.843		
2,200.0	2,150.0	2,140.0	2,139.7	9.1	5.1	119.51	-500.4	327.9	690.1	676.6	13.50	51.100		
2,300.0	2,246.1	2,232.7	2,232.4	9.7	5.3	121.48	-499.5	326.2	703.6	689.5	14.16	49.684		
2,400.0	2,342.2	2,327.2	2,326.8	10.3	5.6	123.41	-498.9	324.5	718.4	703.6	14.80	48.524		
2,500.0	2,438.3	2,422.0	2,421.6	10.8	5.8	125.28	-498.4	322.8	734.1	718.6	15.43	47.575		
2,600.0	2,534.4	2,515.4	2,515.0	11.4	6.1	127.03	-498.1	321.2	750.8	734.7	16.03	46.825		
2,700.0	2,630.6	2,609.8	2,609.5	12.0	6.3	128.70	-498.1	319.9	768.4	751.8	16.62	46.242		
2,800.0	2,726.7	2,705.7	2,705.3	12.5	6.5	130.30	-498.3	318.8	786.8	769.6	17.18	45.792		
2,900.0	2,822.8	2,800.0	2,799.6	13.1	6.7	131.79	-498.7	318.1	805.9	788.2	17.71	45.509		
3,000.0	2,918.9	2,894.0	2,893.6	13.7	6.8	133.19	-499.3	317.5	825.8	807.6	18.20	45.375		
3,100.0	3,015.0	2,992.5	2,992.1	14.3	7.0	134.60	-499.8	316.7	846.0	827.3	18.70	45.233		
3,200.0	3,111.1	3,088.6	3,088.3	14.8	7.2	135.92	-500.1	315.9	866.6	847.3	19.23	45.059		
3,300.0	3,207.3	3,183.4	3,183.0	15.4	7.5	137.18	-500.4	314.9	887.6	867.8	19.76	44.922		
3,400.0	3,303.4	3,279.6	3,279.2	16.0	7.7	138.40	-500.7	313.7	909.1	888.8	20.28	44.821		
3,500.0	3,399.5	3,379.6	3,379.2	16.6	7.9	139.62	-500.8	312.7	930.8	909.9	20.82	44.713		
3,600.0	3,495.6	3,480.2	3,479.7	17.2	8.2	140.77	-500.5	312.0	952.3	931.0	21.35	44.605		
3,700.0	3,591.7	3,578.1	3,577.6	17.7	8.4	141.83	-500.0	311.7	973.8	952.0	21.86	44.541		
3,800.0	3,687.8	3,675.2	3,674.7	18.3	8.6	142.83	-499.4	311.5	995.5	973.2	22.36	44.532 SF		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T1S-R67W - Sack 23-6 (Exist.) - Wellbore #1 - Wellbore #1													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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
8,700.0	7,751.0	7,740.6	7,737.6	32.5	15.9	90.00	-899.5	700.9	948.2	909.9	38.27	24.777		
8,800.0	7,750.6	7,739.9	7,737.0	32.8	15.9	89.95	-899.5	700.9	888.6	849.6	39.04	22.761		
8,900.0	7,750.2	7,739.3	7,736.3	33.2	15.9	89.90	-899.5	700.9	836.8	796.9	39.94	20.950		
9,000.0	7,749.8	7,738.6	7,735.7	33.7	15.9	89.85	-899.5	700.9	794.2	753.3	40.96	19.392		
9,100.0	7,749.4	7,738.0	7,735.0	34.4	15.9	89.80	-899.5	700.9	762.5	720.4	42.07	18.124		
9,200.0	7,749.0	7,737.4	7,734.4	35.1	15.9	89.75	-899.5	700.9	742.9	699.7	43.27	17.169		
9,297.1	7,748.6	7,736.8	7,733.8	36.0	15.9	89.71	-899.5	700.9	736.6	692.0	44.52	16.546 CC		
9,300.0	7,748.6	7,736.8	7,733.8	36.0	15.9	89.71	-899.5	700.9	736.6	692.0	44.55	16.532 ES		
9,400.0	7,748.2	7,736.2	7,733.2	37.0	15.9	89.66	-899.5	700.9	743.7	697.8	45.90	16.203		
9,500.0	7,747.8	7,735.6	7,732.7	38.1	15.9	89.61	-899.5	700.9	764.0	716.7	47.31	16.150 SF		
9,600.0	7,747.4	7,735.1	7,732.1	39.3	15.9	89.57	-899.5	701.0	796.4	747.6	48.76	16.332		
9,700.0	7,747.0	7,734.5	7,731.5	40.5	15.9	89.53	-899.5	701.0	839.5	789.3	50.26	16.702		
9,800.0	7,746.6	7,733.9	7,731.0	41.8	15.9	89.48	-899.5	701.0	891.8	840.0	51.81	17.215		
9,900.0	7,746.2	7,733.4	7,730.4	43.2	15.9	89.44	-899.5	701.0	951.8	898.4	53.38	17.831		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T1S-R67W - Wyman 34-6 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 8120-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,500.0	7,739.8	7,790.8	7,790.8	68.8	155.8	-90.18	-3,686.5	2,199.7	960.3	739.2	221.10	4.343		
11,600.0	7,739.4	7,790.4	7,790.4	70.5	155.8	-90.15	-3,686.5	2,199.7	902.9	680.0	222.92	4.050		
11,700.0	7,739.0	7,790.0	7,790.0	72.2	155.8	-90.12	-3,686.5	2,199.7	853.5	628.8	224.74	3.798		
11,800.0	7,738.6	7,789.6	7,789.6	74.0	155.8	-90.09	-3,686.5	2,199.7	813.4	586.8	226.56	3.590		
11,900.0	7,738.2	7,789.2	7,789.2	75.7	155.8	-90.06	-3,686.5	2,199.7	784.1	555.7	228.39	3.433		
12,000.0	7,737.8	7,788.8	7,788.8	77.5	155.8	-90.03	-3,686.5	2,199.7	766.8	536.6	230.22	3.331		
12,084.1	7,737.4	7,788.4	7,788.4	79.0	155.8	-90.00	-3,686.5	2,199.7	762.2	530.4	231.76	3.289 CC		
12,100.0	7,737.4	7,788.4	7,788.4	79.3	155.8	-90.00	-3,686.5	2,199.7	762.3	530.3	232.06	3.285 ES, SF		
12,189.8	7,737.0	7,788.0	7,788.0	80.9	155.8	-89.97	-3,686.5	2,199.7	769.5	535.8	233.71	3.292		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5071.0ft (RKB - 13')

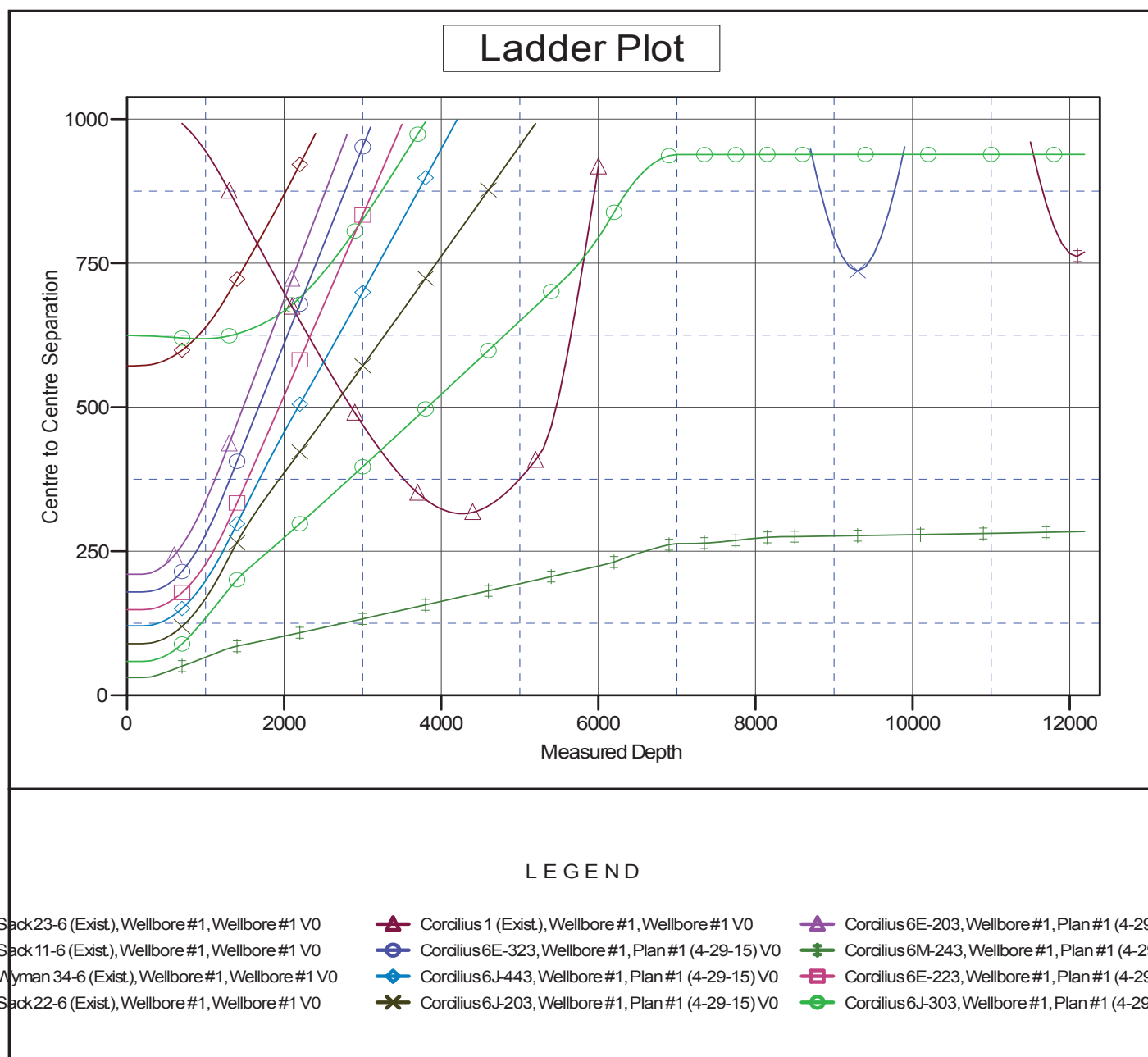
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Corcilus 6M-343

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.36°



Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6M-343
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5071.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5071.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6M-343	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5071.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Corcilus 6M-343

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.36°

