

PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Corcilius 6E-323**

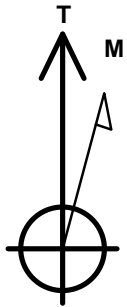
Surface Location: Corcilius 1S67W6J Pad Sec.6-T1S-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 5061.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1242661.83	3157592.48	39.998120	-104.937490	
RKB - 13' WELL @ 5074.0ft (RKB - 13')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E/W Hardline (6E-323)	1.0	-1897.4	-512.8	Rectangle (Sides: L3775.0 W100.0)
SHL 808'FNL & 795'FWL	1.0	0.0	0.0	Point
BHL 500'FSL & 258'FWL	7722.0	-3784.9	-512.8	Point



Azimuths to True North
Magnetic North: 8.40°

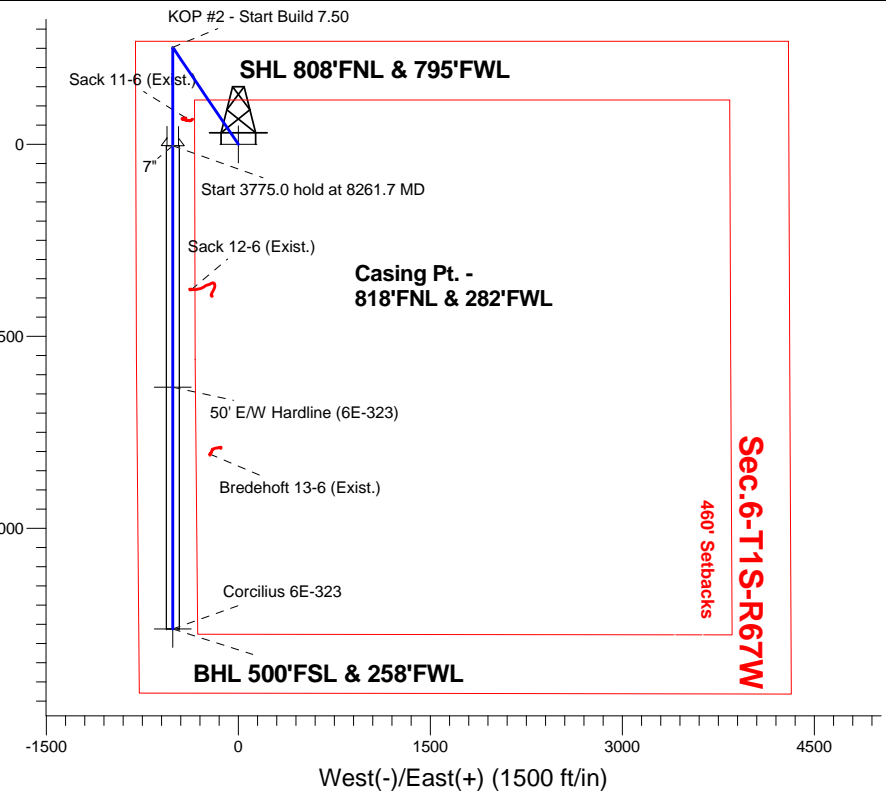
Magnetic Field
Strength: 52492.3snT
Dip Angle: 66.56°
Date: 4/29/2015
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	KOP - Start Build 1.50
5483.5	5560.5	Start Drop -2.00
6977.8	7057.7	KOP #2 - Start Build 7.50
7741.8	8261.7	Start 3775.0 hold at 8261.7 MD
7722.0	12036.7	TD at 12036.7

Corcilius 1S67W6J Pad Sec.6-T1S-R67W
Corcilius 6E-323
Plan #1 (4-29-15)
15:37, September 23 2015

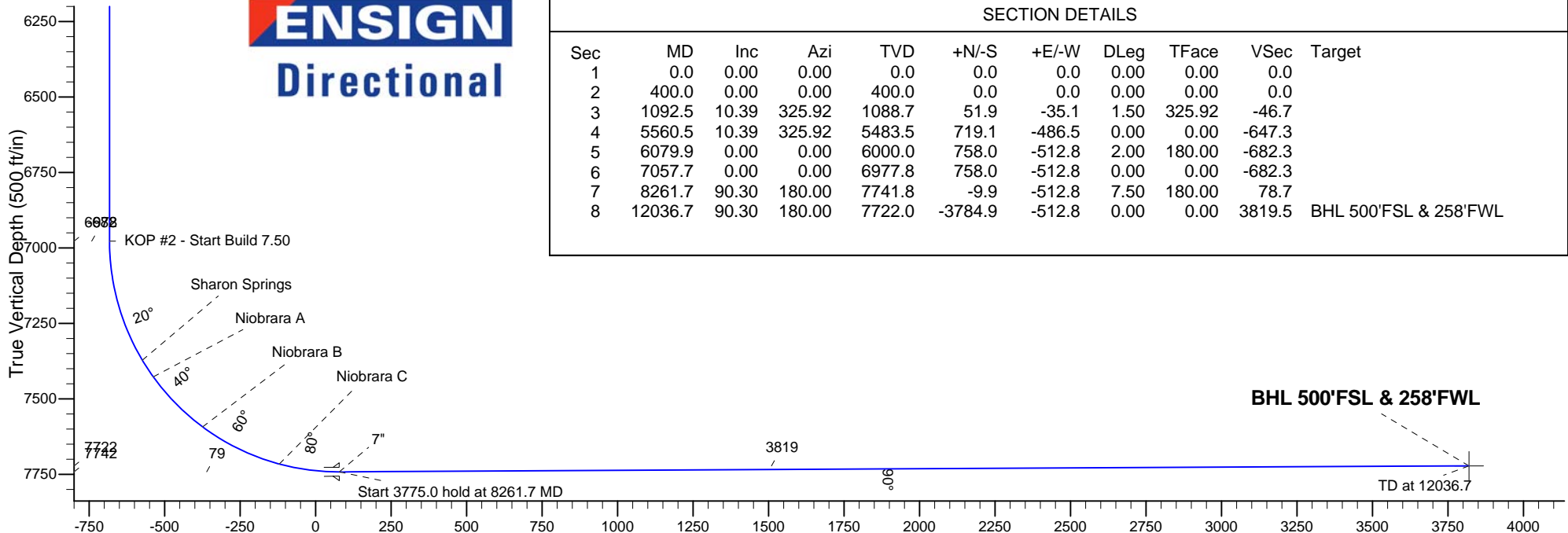
South(-)/North(+) (1500 ft/in)



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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1092.5	10.39	325.92	1088.7	51.9	-35.1	1.50	325.92	-46.7	
4	5560.5	10.39	325.92	5483.5	719.1	-486.5	0.00	0.00	-647.3	
5	6079.9	0.00	0.00	6000.0	758.0	-512.8	2.00	180.00	-682.3	
6	7057.7	0.00	0.00	6977.8	758.0	-512.8	0.00	0.00	-682.3	
7	8261.7	90.30	180.00	7741.8	-9.9	-512.8	7.50	180.00	78.7	
8	12036.7	90.30	180.00	7722.0	-3784.9	-512.8	0.00	0.00	3819.5	BHL 500'FSL & 258'FWL



Vertical Section at 187.72° (500 ft/in)



Directional

PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.6-T1S-R67W

Corcilus 1S67W6J Pad Sec.6-T1S-R67W

Corcilus 6E-323

Wellbore #1

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

Standard Planning Report

23 September, 2015

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6E-323
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6E-323	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:	-104.937600
		Grid Convergence:	0.36 °

Well	Corcilus 6E-323		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	30.8 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	187.72

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,092.5	10.39	325.92	1,088.7	51.9	-35.1	1.50	1.50	0.00	325.92	
5,560.5	10.39	325.92	5,483.5	719.1	-486.5	0.00	0.00	0.00	0.00	
6,079.9	0.00	0.00	6,000.0	758.0	-512.8	2.00	-2.00	0.00	180.00	
7,057.7	0.00	0.00	6,977.8	758.0	-512.8	0.00	0.00	0.00	0.00	
8,261.7	90.30	180.00	7,741.8	-9.9	-512.8	7.50	7.50	0.00	180.00	
12,036.7	90.30	180.00	7,722.0	-3,784.9	-512.8	0.00	0.00	0.00	0.00	BHL 500'FSL & 258'F

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6E-323
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6E-323	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
SHL 808'FNL & 795'FWL - 50' E/W Hardline (6E-323)									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 1.50									
500.0	1.50	325.92	500.0	1.1	-0.7	-1.0	1.50	1.50	0.00
600.0	3.00	325.92	599.9	4.3	-2.9	-3.9	1.50	1.50	0.00
700.0	4.50	325.92	699.7	9.8	-6.6	-8.8	1.50	1.50	0.00
800.0	6.00	325.92	799.3	17.3	-11.7	-15.6	1.50	1.50	0.00
900.0	7.50	325.92	898.6	27.1	-18.3	-24.4	1.50	1.50	0.00
1,000.0	9.00	325.92	997.5	39.0	-26.4	-35.1	1.50	1.50	0.00
1,092.5	10.39	325.92	1,088.7	51.9	-35.1	-46.7	1.50	1.50	0.00
1,100.0	10.39	325.92	1,096.1	53.0	-35.8	-47.7	0.00	0.00	0.00
1,200.0	10.39	325.92	1,194.5	67.9	-45.9	-61.1	0.00	0.00	0.00
1,300.0	10.39	325.92	1,292.8	82.8	-56.0	-74.6	0.00	0.00	0.00
1,400.0	10.39	325.92	1,391.2	97.8	-66.1	-88.0	0.00	0.00	0.00
1,500.0	10.39	325.92	1,489.5	112.7	-76.2	-101.5	0.00	0.00	0.00
1,600.0	10.39	325.92	1,587.9	127.6	-86.4	-114.9	0.00	0.00	0.00
1,700.0	10.39	325.92	1,686.3	142.6	-96.5	-128.3	0.00	0.00	0.00
1,800.0	10.39	325.92	1,784.6	157.5	-106.6	-141.8	0.00	0.00	0.00
1,900.0	10.39	325.92	1,883.0	172.4	-116.7	-155.2	0.00	0.00	0.00
2,000.0	10.39	325.92	1,981.3	187.4	-126.8	-168.7	0.00	0.00	0.00
2,100.0	10.39	325.92	2,079.7	202.3	-136.9	-182.1	0.00	0.00	0.00
2,200.0	10.39	325.92	2,178.1	217.2	-147.0	-195.5	0.00	0.00	0.00
2,300.0	10.39	325.92	2,276.4	232.2	-157.1	-209.0	0.00	0.00	0.00
2,400.0	10.39	325.92	2,374.8	247.1	-167.2	-222.4	0.00	0.00	0.00
2,500.0	10.39	325.92	2,473.1	262.1	-177.3	-235.9	0.00	0.00	0.00
2,600.0	10.39	325.92	2,571.5	277.0	-187.4	-249.3	0.00	0.00	0.00
2,700.0	10.39	325.92	2,669.9	291.9	-197.5	-262.8	0.00	0.00	0.00
2,800.0	10.39	325.92	2,768.2	306.9	-207.6	-276.2	0.00	0.00	0.00
2,900.0	10.39	325.92	2,866.6	321.8	-217.7	-289.6	0.00	0.00	0.00
3,000.0	10.39	325.92	2,964.9	336.7	-227.8	-303.1	0.00	0.00	0.00
3,100.0	10.39	325.92	3,063.3	351.7	-237.9	-316.5	0.00	0.00	0.00
3,200.0	10.39	325.92	3,161.7	366.6	-248.0	-330.0	0.00	0.00	0.00
3,300.0	10.39	325.92	3,260.0	381.5	-258.1	-343.4	0.00	0.00	0.00
3,400.0	10.39	325.92	3,358.4	396.5	-268.2	-356.9	0.00	0.00	0.00
3,500.0	10.39	325.92	3,456.8	411.4	-278.3	-370.3	0.00	0.00	0.00
3,600.0	10.39	325.92	3,555.1	426.3	-288.4	-383.7	0.00	0.00	0.00
3,700.0	10.39	325.92	3,653.5	441.3	-298.5	-397.2	0.00	0.00	0.00
3,800.0	10.39	325.92	3,751.8	456.2	-308.6	-410.6	0.00	0.00	0.00
3,900.0	10.39	325.92	3,850.2	471.1	-318.7	-424.1	0.00	0.00	0.00
4,000.0	10.39	325.92	3,948.6	486.1	-328.8	-437.5	0.00	0.00	0.00
4,100.0	10.39	325.92	4,046.9	501.0	-338.9	-451.0	0.00	0.00	0.00
4,200.0	10.39	325.92	4,145.3	515.9	-349.0	-464.4	0.00	0.00	0.00
4,300.0	10.39	325.92	4,243.6	530.9	-359.1	-477.8	0.00	0.00	0.00
4,400.0	10.39	325.92	4,342.0	545.8	-369.2	-491.3	0.00	0.00	0.00
4,489.5	10.39	325.92	4,430.0	559.2	-378.3	-503.3	0.00	0.00	0.00
Parkman									
4,500.0	10.39	325.92	4,440.4	560.7	-379.3	-504.7	0.00	0.00	0.00
4,600.0	10.39	325.92	4,538.7	575.7	-389.4	-518.2	0.00	0.00	0.00

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Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6E-323	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	10.39	325.92	4,637.1	590.6	-399.5	-531.6	0.00	0.00	0.00
4,800.0	10.39	325.92	4,735.4	605.5	-409.7	-545.1	0.00	0.00	0.00
4,865.6	10.39	325.92	4,800.0	615.3	-416.3	-553.9	0.00	0.00	0.00
Sussex									
4,900.0	10.39	325.92	4,833.8	620.5	-419.8	-558.5	0.00	0.00	0.00
5,000.0	10.39	325.92	4,932.2	635.4	-429.9	-571.9	0.00	0.00	0.00
5,100.0	10.39	325.92	5,030.5	650.3	-440.0	-585.4	0.00	0.00	0.00
5,200.0	10.39	325.92	5,128.9	665.3	-450.1	-598.8	0.00	0.00	0.00
5,300.0	10.39	325.92	5,227.3	680.2	-460.2	-612.3	0.00	0.00	0.00
5,400.0	10.39	325.92	5,325.6	695.1	-470.3	-625.7	0.00	0.00	0.00
5,455.3	10.39	325.92	5,380.0	703.4	-475.9	-633.1	0.00	0.00	0.00
Shannon									
5,500.0	10.39	325.92	5,424.0	710.1	-480.4	-639.2	0.00	0.00	0.00
5,560.5	10.39	325.92	5,483.5	719.1	-486.5	-647.3	0.00	0.00	0.00
Start Drop -2.00									
5,600.0	9.60	325.92	5,522.4	724.8	-490.3	-652.4	2.00	-2.00	0.00
5,700.0	7.60	325.92	5,621.3	737.2	-498.7	-663.5	2.00	-2.00	0.00
5,800.0	5.60	325.92	5,720.6	746.7	-505.1	-672.1	2.00	-2.00	0.00
5,900.0	3.60	325.92	5,820.3	753.3	-509.6	-678.1	2.00	-2.00	0.00
6,000.0	1.60	325.92	5,920.2	757.1	-512.2	-681.5	2.00	-2.00	0.00
6,079.9	0.00	0.00	6,000.0	758.0	-512.8	-682.3	2.00	-2.00	0.00
6,100.0	0.00	0.00	6,020.1	758.0	-512.8	-682.3	0.00	0.00	0.00
6,200.0	0.00	0.00	6,120.1	758.0	-512.8	-682.3	0.00	0.00	0.00
6,300.0	0.00	0.00	6,220.1	758.0	-512.8	-682.3	0.00	0.00	0.00
6,400.0	0.00	0.00	6,320.1	758.0	-512.8	-682.3	0.00	0.00	0.00
6,500.0	0.00	0.00	6,420.1	758.0	-512.8	-682.3	0.00	0.00	0.00
6,600.0	0.00	0.00	6,520.1	758.0	-512.8	-682.3	0.00	0.00	0.00
6,700.0	0.00	0.00	6,620.1	758.0	-512.8	-682.3	0.00	0.00	0.00
6,800.0	0.00	0.00	6,720.1	758.0	-512.8	-682.3	0.00	0.00	0.00
6,900.0	0.00	0.00	6,820.1	758.0	-512.8	-682.3	0.00	0.00	0.00
7,000.0	0.00	0.00	6,920.1	758.0	-512.8	-682.3	0.00	0.00	0.00
7,057.7	0.00	0.00	6,977.8	758.0	-512.8	-682.3	0.00	0.00	0.00
KOP #2 - Start Build 7.50									
7,100.0	3.17	180.00	7,020.1	756.8	-512.8	-681.1	7.50	7.50	0.00
7,200.0	10.67	180.00	7,119.3	744.8	-512.8	-669.2	7.50	7.50	0.00
7,300.0	18.17	180.00	7,216.1	719.9	-512.8	-644.5	7.50	7.50	0.00
7,400.0	25.67	180.00	7,308.8	682.6	-512.8	-607.6	7.50	7.50	0.00
7,471.8	31.06	180.00	7,372.0	648.5	-512.8	-573.7	7.50	7.50	0.00
Sharon Springs									
7,500.0	33.17	180.00	7,395.8	633.5	-512.8	-558.9	7.50	7.50	0.00
7,537.9	36.01	180.00	7,427.0	612.0	-512.8	-537.6	7.50	7.50	0.00
Niobrara A									
7,600.0	40.67	180.00	7,475.7	573.5	-512.8	-499.4	7.50	7.50	0.00
7,700.0	48.17	180.00	7,547.1	503.5	-512.8	-430.1	7.50	7.50	0.00
7,772.8	53.63	180.00	7,593.0	447.0	-512.8	-374.1	7.50	7.50	0.00
Niobrara B									
7,800.0	55.67	180.00	7,608.7	424.9	-512.8	-352.2	7.50	7.50	0.00
7,900.0	63.17	180.00	7,659.6	338.8	-512.8	-266.9	7.50	7.50	0.00
8,000.0	70.67	180.00	7,698.7	246.9	-512.8	-175.8	7.50	7.50	0.00
8,058.7	75.07	180.00	7,716.0	190.8	-512.8	-120.3	7.50	7.50	0.00
Niobrara C									
8,100.0	78.17	180.00	7,725.6	150.6	-512.8	-80.4	7.50	7.50	0.00

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Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6E-323	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)
8,200.0	85.67	180.00	7,739.6	51.7	-512.8	17.6	7.50	7.50	0.00
8,261.7	90.30	180.00	7,741.8	-10.0	-512.8	78.7	7.50	7.50	0.00
Start 3775.0 hold at 8261.7 MD - 7"									
8,300.0	90.30	180.00	7,741.6	-48.3	-512.8	116.7	0.00	0.00	0.00
8,400.0	90.30	180.00	7,741.0	-148.3	-512.8	215.8	0.00	0.00	0.00
8,500.0	90.30	180.00	7,740.5	-248.3	-512.8	314.9	0.00	0.00	0.00
8,600.0	90.30	180.00	7,740.0	-348.3	-512.8	413.9	0.00	0.00	0.00
8,700.0	90.30	180.00	7,739.5	-448.2	-512.8	513.0	0.00	0.00	0.00
8,800.0	90.30	180.00	7,738.9	-548.2	-512.8	612.1	0.00	0.00	0.00
8,900.0	90.30	180.00	7,738.4	-648.2	-512.8	711.2	0.00	0.00	0.00
9,000.0	90.30	180.00	7,737.9	-748.2	-512.8	810.3	0.00	0.00	0.00
9,100.0	90.30	180.00	7,737.4	-848.2	-512.8	909.4	0.00	0.00	0.00
9,200.0	90.30	180.00	7,736.9	-948.2	-512.8	1,008.5	0.00	0.00	0.00
9,300.0	90.30	180.00	7,736.3	-1,048.2	-512.8	1,107.6	0.00	0.00	0.00
9,400.0	90.30	180.00	7,735.8	-1,148.2	-512.8	1,206.7	0.00	0.00	0.00
9,500.0	90.30	180.00	7,735.3	-1,248.2	-512.8	1,305.8	0.00	0.00	0.00
9,600.0	90.30	180.00	7,734.8	-1,348.2	-512.8	1,404.9	0.00	0.00	0.00
9,700.0	90.30	180.00	7,734.2	-1,448.2	-512.8	1,504.0	0.00	0.00	0.00
9,800.0	90.30	180.00	7,733.7	-1,548.2	-512.8	1,603.1	0.00	0.00	0.00
9,900.0	90.30	180.00	7,733.2	-1,648.2	-512.8	1,702.2	0.00	0.00	0.00
10,000.0	90.30	180.00	7,732.7	-1,748.2	-512.8	1,801.2	0.00	0.00	0.00
10,100.0	90.30	180.00	7,732.1	-1,848.2	-512.8	1,900.3	0.00	0.00	0.00
10,200.0	90.30	180.00	7,731.6	-1,948.2	-512.8	1,999.4	0.00	0.00	0.00
10,300.0	90.30	180.00	7,731.1	-2,048.2	-512.8	2,098.5	0.00	0.00	0.00
10,400.0	90.30	180.00	7,730.6	-2,148.2	-512.8	2,197.6	0.00	0.00	0.00
10,500.0	90.30	180.00	7,730.0	-2,248.2	-512.8	2,296.7	0.00	0.00	0.00
10,600.0	90.30	180.00	7,729.5	-2,348.2	-512.8	2,395.8	0.00	0.00	0.00
10,700.0	90.30	180.00	7,729.0	-2,448.2	-512.8	2,494.9	0.00	0.00	0.00
10,800.0	90.30	180.00	7,728.5	-2,548.2	-512.8	2,594.0	0.00	0.00	0.00
10,900.0	90.30	180.00	7,728.0	-2,648.2	-512.8	2,693.1	0.00	0.00	0.00
11,000.0	90.30	180.00	7,727.4	-2,748.2	-512.8	2,792.2	0.00	0.00	0.00
11,100.0	90.30	180.00	7,726.9	-2,848.2	-512.8	2,891.3	0.00	0.00	0.00
11,200.0	90.30	180.00	7,726.4	-2,948.2	-512.8	2,990.4	0.00	0.00	0.00
11,300.0	90.30	180.00	7,725.9	-3,048.2	-512.8	3,089.5	0.00	0.00	0.00
11,400.0	90.30	180.00	7,725.3	-3,148.2	-512.8	3,188.6	0.00	0.00	0.00
11,500.0	90.30	180.00	7,724.8	-3,248.2	-512.8	3,287.6	0.00	0.00	0.00
11,600.0	90.30	180.00	7,724.3	-3,348.2	-512.8	3,386.7	0.00	0.00	0.00
11,700.0	90.30	180.00	7,723.8	-3,448.2	-512.8	3,485.8	0.00	0.00	0.00
11,800.0	90.30	180.00	7,723.2	-3,548.2	-512.8	3,584.9	0.00	0.00	0.00
11,900.0	90.30	180.00	7,722.7	-3,648.2	-512.8	3,684.0	0.00	0.00	0.00
12,000.0	90.30	180.00	7,722.2	-3,748.2	-512.8	3,783.1	0.00	0.00	0.00
12,036.7	90.30	180.00	7,722.0	-3,784.9	-512.8	3,819.5	0.00	0.00	0.00
TD at 12036.7 - BHL 500'FSL & 258'FWL									

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6E-323
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6E-323	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
SHL 808'FNL & 795'FWL - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,242,661.84	3,157,592.48	39.998120	-104.937490
50' E/W Hardline (6E-32) - plan misses target center by 1965.5ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W100.0 H3,775.0 D0.0)	0.00	0.00	1.0	-1,897.4	-512.8	1,240,761.28	3,157,091.75	39.992912	-104.939320
BHL 500'FSL & 258'FWL - plan hits target center - Point	0.00	0.00	7,722.0	-3,784.9	-512.8	1,238,873.87	3,157,103.73	39.987730	-104.939320

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
8,261.7	7,741.8	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,489.5	4,430.0	Parkman		0.00		
4,865.6	4,800.0	Sussex		0.00		
5,455.3	5,380.0	Shannon		0.00		
7,471.8	7,372.0	Sharon Springs		0.00		
7,537.9	7,427.0	Niobrara A		0.00		
7,772.8	7,593.0	Niobrara B		0.00		
8,058.7	7,716.0	Niobrara C		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
400.0	400.0	0.0	0.0	KOP - Start Build 1.50	
5,560.5	5,483.5	719.1	-486.5	Start Drop -2.00	
7,057.7	6,977.8	758.0	-512.8	KOP #2 - Start Build 7.50	
8,261.7	7,741.8	-10.0	-512.8	Start 3775.0 hold at 8261.7 MD	
12,036.7	7,722.0	-3,784.9	-512.8	TD at 12036.7	



Directional

PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.6-T1S-R67W

Corcilus 1S67W6J Pad Sec.6-T1S-R67W

Corcilus 6E-323

Wellbore #1

Plan #1 (4-29-15)

Anticollision Report

23 September, 2015



Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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 5/4/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,036.7	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						
Corcilus 1S67W6J Pad Sec.6-T1S-R67W						
Corcilus 6E-203 - Wellbore #1 - Plan #1 (4-29-15)	200.0	200.0	30.8	30.1	45.705	CC, ES
Corcilus 6E-203 - Wellbore #1 - Plan #1 (4-29-15)	12,036.7	11,948.9	233.3	89.1	1.617	SF
Corcilus 6E-223 - Wellbore #1 - Plan #1 (4-29-15)	400.0	400.0	30.8	29.2	19.588	CC, ES
Corcilus 6E-223 - Wellbore #1 - Plan #1 (4-29-15)	12,036.7	11,930.0	225.9	85.9	1.613	SF
Corcilus 6J-203 - Wellbore #1 - Plan #1 (4-29-15)	400.0	399.0	89.7	88.2	57.112	CC, ES
Corcilus 6J-203 - Wellbore #1 - Plan #1 (4-29-15)	12,036.7	11,957.0	860.7	705.3	5.537	SF
Corcilus 6J-443 - Wellbore #1 - Plan #1 (4-29-15)	400.0	399.0	58.8	57.3	37.449	CC, ES
Corcilus 6J-443 - Wellbore #1 - Plan #1 (4-29-15)	12,036.7	12,139.6	536.4	384.2	3.525	SF
Existing Wells Sec.6-T1S-R67W						
Bredehoft 13-6 (Exist.) - Wellbore #1 - Wellbore #1	10,668.5	7,742.2	290.4	221.8	4.231	CC, ES
Bredehoft 13-6 (Exist.) - Wellbore #1 - Wellbore #1	10,700.0	7,742.3	292.1	222.9	4.221	SF
Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1	8,043.5	7,704.5	86.8	52.3	2.515	CC, ES, SF
Sack 12-6 (Exist.) - Wellbore #1 - Wellbore #1	9,387.9	7,721.8	135.4	87.6	2.830	CC, ES, SF

Offset Design Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 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 Measured Depth (ft)	Vertical Depth (ft)	Offset Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-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	299.4	299.4	0.6	0.6	-88.27	1.0	-31.7	31.7	30.6	1.12	28.289	
400.0	400.0	398.7	398.7	0.8	0.8	-83.63	3.8	-34.3	34.5	33.0	1.57	21.968	
500.0	500.0	497.9	497.6	1.0	1.0	-44.66	8.6	-38.6	38.7	36.7	2.02	19.165	
600.0	599.9	596.9	596.1	1.2	1.3	-41.14	15.2	-44.7	43.3	40.8	2.48	17.491	
700.0	699.7	695.7	694.3	1.5	1.6	-38.67	23.8	-52.4	48.2	45.3	2.94	16.385	
800.0	799.3	794.4	792.0	1.7	1.9	-37.01	34.2	-61.9	53.4	49.9	3.42	15.589	
900.0	898.6	893.2	889.4	2.0	2.2	-35.96	46.4	-73.0	58.7	54.8	3.92	14.962	
1,000.0	997.5	993.1	987.7	2.3	2.6	-36.07	59.5	-84.9	62.8	58.3	4.45	14.115	
1,092.5	1,088.7	1,085.6	1,078.7	2.6	2.9	-37.38	71.6	-95.9	64.7	59.7	4.96	13.031	
1,100.0	1,096.1	1,093.1	1,086.1	2.6	3.0	-37.54	72.6	-96.7	64.8	59.8	5.01	12.935	

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 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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		Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 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)				
1,200.0	1,194.5	1,193.0	1,184.5	3.0	3.3	-39.54	85.7	-108.6	65.9	60.3	5.60	11.763			
1,300.0	1,292.8	1,293.0	1,282.9	3.3	3.7	-41.48	98.8	-120.5	67.2	60.9	6.23	10.784			
1,400.0	1,391.2	1,393.0	1,381.3	3.7	4.1	-43.34	111.9	-132.4	68.5	61.6	6.87	9.960			
1,500.0	1,489.5	1,492.9	1,479.7	4.1	4.5	-45.14	125.0	-144.3	69.9	62.3	7.54	9.259			
1,600.0	1,587.9	1,592.9	1,578.1	4.5	4.9	-46.86	138.1	-156.2	71.3	63.1	8.23	8.661			
1,700.0	1,686.3	1,692.9	1,676.5	4.9	5.3	-48.51	151.1	-168.1	72.8	63.9	8.94	8.145			
1,800.0	1,784.6	1,792.8	1,774.8	5.3	5.7	-50.09	164.2	-180.0	74.4	64.7	9.66	7.699			
1,900.0	1,883.0	1,892.8	1,873.2	5.7	6.1	-51.61	177.3	-191.9	76.0	65.6	10.40	7.310			
2,000.0	1,981.3	1,992.8	1,971.6	6.1	6.5	-53.06	190.4	-203.8	77.7	66.5	11.14	6.969			
2,100.0	2,079.7	2,092.7	2,070.0	6.4	6.9	-54.45	203.5	-215.7	79.4	67.5	11.90	6.669			
2,200.0	2,178.1	2,192.7	2,168.4	6.8	7.3	-55.78	216.6	-227.5	81.2	68.5	12.67	6.404			
2,300.0	2,276.4	2,292.7	2,266.8	7.2	7.7	-57.06	229.7	-239.4	83.0	69.5	13.45	6.168			
2,400.0	2,374.8	2,392.6	2,365.2	7.6	8.1	-58.28	242.8	-251.3	84.8	70.6	14.23	5.958			
2,500.0	2,473.1	2,492.6	2,463.6	8.0	8.5	-59.44	255.9	-263.2	86.7	71.7	15.03	5.769			
2,600.0	2,571.5	2,592.6	2,562.0	8.4	8.9	-60.56	269.0	-275.1	88.6	72.8	15.82	5.600			
2,700.0	2,669.9	2,692.5	2,660.4	8.8	9.3	-61.63	282.1	-287.0	90.5	73.9	16.62	5.447			
2,800.0	2,768.2	2,792.5	2,758.8	9.2	9.7	-62.65	295.2	-298.9	92.5	75.1	17.43	5.308			
2,900.0	2,866.6	2,892.5	2,857.1	9.6	10.1	-63.63	308.3	-310.8	94.5	76.3	18.24	5.183			
3,000.0	2,964.9	2,992.4	2,955.5	10.0	10.5	-64.57	321.3	-322.7	96.6	77.5	19.05	5.068			
3,100.0	3,063.3	3,092.4	3,053.9	10.4	10.9	-65.47	334.4	-334.6	98.6	78.8	19.87	4.964			
3,200.0	3,161.7	3,192.4	3,152.3	10.8	11.3	-66.33	347.5	-346.4	100.7	80.0	20.69	4.868			
3,300.0	3,260.0	3,292.3	3,250.7	11.3	11.7	-67.16	360.6	-358.3	102.8	81.3	21.51	4.781			
3,400.0	3,358.4	3,392.3	3,349.1	11.7	12.1	-67.96	373.7	-370.2	104.9	82.6	22.33	4.700			
3,500.0	3,456.8	3,492.3	3,447.5	12.1	12.5	-68.72	386.8	-382.1	107.1	83.9	23.15	4.625			
3,600.0	3,555.1	3,592.2	3,545.9	12.5	12.9	-69.45	399.9	-394.0	109.2	85.3	23.97	4.557			
3,700.0	3,653.5	3,692.2	3,644.3	12.9	13.3	-70.16	413.0	-405.9	111.4	86.6	24.80	4.493			
3,800.0	3,751.8	3,792.2	3,742.7	13.3	13.7	-70.83	426.1	-417.8	113.6	88.0	25.63	4.434			
3,900.0	3,850.2	3,892.1	3,841.0	13.7	14.1	-71.49	439.2	-429.7	115.8	89.4	26.45	4.379			
4,000.0	3,948.6	3,992.1	3,939.4	14.1	14.5	-72.11	452.3	-441.6	118.1	90.8	27.28	4.328			
4,100.0	4,046.9	4,092.1	4,037.8	14.5	14.9	-72.72	465.4	-453.5	120.3	92.2	28.11	4.280			
4,200.0	4,145.3	4,192.0	4,136.2	14.9	15.3	-73.30	478.5	-465.4	122.5	93.6	28.93	4.236			
4,300.0	4,243.6	4,292.0	4,234.6	15.3	15.7	-73.86	491.5	-477.2	124.8	95.0	29.76	4.194			
4,400.0	4,342.0	4,392.0	4,333.0	15.7	16.1	-74.40	504.6	-489.1	127.1	96.5	30.59	4.155			
4,500.0	4,440.4	4,491.9	4,431.4	16.1	16.5	-74.92	517.7	-501.0	129.4	98.0	31.41	4.118			
4,600.0	4,538.7	4,591.9	4,529.8	16.5	16.9	-75.42	530.8	-512.9	131.7	99.4	32.24	4.084			
4,700.0	4,637.1	4,691.9	4,628.2	16.9	17.3	-75.91	543.9	-524.8	134.0	100.9	33.07	4.051			
4,800.0	4,735.4	4,791.8	4,726.6	17.3	17.7	-76.38	557.0	-536.7	136.3	102.4	33.90	4.021			
4,900.0	4,833.8	4,891.8	4,824.9	17.7	18.1	-76.83	570.1	-548.6	138.6	103.9	34.72	3.992			
5,000.0	4,932.2	4,991.8	4,923.3	18.1	18.5	-77.27	583.2	-560.5	140.9	105.4	35.55	3.965			
5,100.0	5,030.5	5,091.7	5,021.7	18.5	18.9	-77.70	596.3	-572.4	143.3	106.9	36.37	3.939			
5,200.0	5,128.9	5,191.7	5,120.1	18.9	19.3	-78.11	609.4	-584.3	145.6	108.4	37.20	3.915			
5,300.0	5,227.3	5,291.7	5,218.5	19.3	19.7	-78.51	622.5	-596.1	148.0	110.0	38.03	3.892			
5,400.0	5,325.6	5,391.6	5,316.9	19.7	20.1	-78.89	635.6	-608.0	150.4	111.5	38.85	3.870			
5,500.0	5,424.0	5,491.6	5,415.3	20.1	20.5	-79.27	648.7	-619.9	152.7	113.0	39.68	3.849			
5,560.5	5,483.5	5,552.1	5,474.8	20.4	20.7	-79.49	656.6	-627.1	154.2	114.0	40.18	3.837			
5,600.0	5,522.4	5,591.6	5,513.7	20.5	20.9	-79.55	661.7	-631.8	155.1	114.7	40.47	3.833			
5,700.0	5,621.3	5,691.5	5,612.0	20.8	21.3	-78.84	674.8	-643.7	158.1	117.0	41.06	3.851			
5,800.0	5,720.6	5,791.3	5,710.2	21.0	21.7	-76.98	687.9	-655.6	161.8	120.4	41.46	3.904			
5,900.0	5,820.3	5,890.8	5,808.2	21.2	22.1	-74.07	700.9	-667.4	166.7	125.1	41.63	4.004			
6,000.0	5,920.2	5,989.9	5,905.7	21.4	22.5	-70.29	713.9	-679.2	173.1	131.6	41.56	4.166			
6,079.9	6,000.0	6,068.7	5,983.3	21.5	22.8	-100.88	724.2	-688.6	179.8	138.5	41.31	4.352			

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 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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 6E-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		
6,100.0	6,020.1	6,088.9	6,003.1	21.5	22.9	-99.92	726.9	-691.0	181.7	140.4	41.21	4.408		
6,200.0	6,120.1	6,191.4	6,104.4	21.7	23.2	-95.84	738.7	-701.7	190.5	149.8	40.78	4.672		
6,300.0	6,220.1	6,295.1	6,207.3	21.8	23.4	-92.93	747.9	-710.1	197.9	157.4	40.52	4.885		
6,400.0	6,320.1	6,399.4	6,311.3	21.9	23.6	-91.02	754.4	-716.0	203.4	163.0	40.43	5.031		
6,500.0	6,420.1	6,504.3	6,416.1	22.1	23.8	-89.97	758.1	-719.3	206.6	166.1	40.50	5.100		
6,600.0	6,520.1	6,608.4	6,520.1	22.2	23.9	-89.72	759.0	-720.1	207.4	166.6	40.74	5.090		
6,700.0	6,620.1	6,708.4	6,620.1	22.4	24.1	-89.72	759.0	-720.1	207.4	166.3	41.04	5.053		
6,800.0	6,720.1	6,808.4	6,720.1	22.5	24.2	-89.72	759.0	-720.1	207.4	166.0	41.34	5.016		
6,900.0	6,820.1	6,908.4	6,820.1	22.6	24.3	-89.72	759.0	-720.1	207.4	165.7	41.64	4.979		
7,000.0	6,920.1	7,008.4	6,920.1	22.8	24.5	-90.00	758.0	-720.1	207.4	165.4	42.00	4.937		
7,000.3	6,920.5	7,008.8	6,920.5	22.8	24.5	-90.00	758.0	-720.1	207.4	165.4	42.00	4.937		
7,057.7	6,977.8	7,065.7	6,977.2	22.9	24.5	-91.39	753.0	-720.1	207.4	165.0	42.43	4.889		
7,100.0	7,020.1	7,107.3	7,018.3	22.9	24.5	87.16	746.6	-720.1	207.6	164.8	42.79	4.852		
7,150.0	7,069.9	7,156.0	7,065.9	22.9	24.4	85.47	736.4	-720.1	208.0	164.9	43.14	4.822		
7,200.0	7,119.3	7,204.4	7,112.5	22.9	24.4	83.82	723.2	-720.1	208.6	165.2	43.40	4.806		
7,250.0	7,168.1	7,252.5	7,157.8	22.9	24.3	82.20	707.3	-720.1	209.3	165.8	43.56	4.805		
7,300.0	7,216.1	7,300.0	7,201.5	22.8	24.2	80.63	688.7	-720.1	210.2	166.6	43.62	4.818		
7,350.0	7,263.1	7,347.5	7,244.0	22.7	24.1	79.12	667.4	-720.1	211.2	167.6	43.59	4.846		
7,400.0	7,308.8	7,394.6	7,284.7	22.6	24.0	77.66	643.8	-720.1	212.3	168.9	43.45	4.887		
7,450.0	7,353.1	7,441.3	7,323.7	22.5	23.8	76.28	618.0	-720.1	213.5	170.3	43.21	4.941		
7,500.0	7,395.8	7,487.8	7,360.7	22.4	23.7	74.96	589.9	-720.1	214.8	171.9	42.88	5.008		
7,550.0	7,436.8	7,534.1	7,395.8	22.2	23.5	73.72	559.8	-720.1	216.1	173.6	42.47	5.087		
7,600.0	7,475.7	7,580.0	7,428.9	22.0	23.3	72.56	527.9	-720.1	217.4	175.4	41.99	5.177		
7,650.0	7,512.6	7,625.8	7,459.8	21.8	23.2	71.48	494.1	-720.1	218.8	177.3	41.46	5.277		
7,700.0	7,547.1	7,671.4	7,488.5	21.7	23.0	70.48	458.8	-720.1	220.1	179.2	40.88	5.383		
7,750.0	7,579.2	7,716.7	7,514.9	21.5	22.8	69.56	421.9	-720.1	221.4	181.1	40.28	5.495		
7,800.0	7,608.7	7,761.9	7,539.1	21.3	22.7	68.73	383.7	-720.1	222.6	182.9	39.68	5.609		
7,850.0	7,635.5	7,807.0	7,560.8	21.1	22.5	67.98	344.3	-720.1	223.7	184.6	39.11	5.721		
7,900.0	7,659.6	7,850.0	7,579.4	20.9	22.3	67.34	305.5	-720.1	224.8	186.2	38.57	5.827		
7,950.0	7,680.6	7,896.7	7,597.1	20.7	22.2	66.74	262.3	-720.1	225.7	187.6	38.10	5.925		
8,000.0	7,698.7	7,941.3	7,611.5	20.6	22.0	66.25	220.0	-720.1	226.6	188.9	37.72	6.007		
8,050.0	7,713.7	7,985.9	7,623.3	20.4	21.8	65.84	177.0	-720.1	227.3	189.8	37.44	6.071		
8,100.0	7,725.6	8,030.4	7,632.7	20.3	21.7	65.52	133.5	-720.1	227.9	190.6	37.28	6.112		
8,150.0	7,734.2	8,074.9	7,639.5	20.1	21.6	65.28	89.6	-720.1	228.3	191.0	37.26	6.127		
8,200.0	7,739.6	8,119.3	7,643.7	20.0	21.4	65.13	45.4	-720.1	228.6	191.2	37.37	6.116		
8,250.0	7,741.7	8,163.7	7,645.3	19.9	21.3	65.06	1.0	-720.1	228.7	191.1	37.63	6.078		
8,261.7	7,741.8	8,174.1	7,645.3	19.9	21.3	65.05	-9.4	-720.1	228.7	191.0	37.71	6.065		
8,300.0	7,741.6	8,212.2	7,645.0	19.8	21.2	65.03	-47.5	-720.1	228.7	190.7	38.04	6.013		
8,400.0	7,741.0	8,312.2	7,644.2	20.0	21.1	64.97	-147.5	-720.1	228.9	189.8	39.10	5.853		
8,500.0	7,740.5	8,412.2	7,643.4	20.8	21.4	64.90	-247.5	-720.1	229.0	188.5	40.44	5.662		
8,600.0	7,740.0	8,512.2	7,642.6	21.7	22.3	64.84	-347.5	-720.1	229.1	187.1	42.03	5.451		
8,700.0	7,739.5	8,612.2	7,641.8	22.7	23.3	64.78	-447.5	-720.1	229.2	185.4	43.85	5.228		
8,800.0	7,738.9	8,712.2	7,641.0	23.9	24.4	64.71	-547.5	-720.1	229.3	183.5	45.86	5.001		
8,900.0	7,738.4	8,812.2	7,640.2	25.1	25.7	64.65	-647.5	-720.1	229.4	181.4	48.04	4.776		
9,000.0	7,737.9	8,912.2	7,639.4	26.4	26.9	64.59	-747.5	-720.1	229.6	179.2	50.37	4.557		
9,100.0	7,737.4	9,012.2	7,638.6	27.8	28.3	64.52	-847.5	-720.1	229.7	176.9	52.83	4.348		
9,200.0	7,736.9	9,112.2	7,637.8	29.2	29.7	64.46	-947.4	-720.1	229.8	174.4	55.40	4.148		
9,300.0	7,736.3	9,212.2	7,637.0	30.7	31.2	64.40	-1,047.4	-720.1	229.9	171.9	58.07	3.960		
9,400.0	7,735.8	9,312.2	7,636.2	32.2	32.7	64.34	-1,147.4	-720.1	230.0	169.2	60.82	3.783		
9,500.0	7,735.3	9,412.2	7,635.4	33.7	34.2	64.27	-1,247.4	-720.1	230.2	166.5	63.63	3.617		
9,600.0	7,734.8	9,512.2	7,634.6	35.3	35.8	64.21	-1,347.4	-720.1	230.3	163.8	66.51	3.462		

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 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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 6E-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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,700.0	7,734.2	9,612.2	7,633.8	36.9	37.4	64.15	-1,447.4	-720.1	230.4	161.0	69.45	3.318		
9,800.0	7,733.7	9,712.2	7,633.0	38.6	39.0	64.09	-1,547.4	-720.1	230.5	158.1	72.43	3.183		
9,900.0	7,733.2	9,812.2	7,632.2	40.3	40.7	64.02	-1,647.4	-720.1	230.7	155.2	75.45	3.057		
10,000.0	7,732.7	9,912.2	7,631.4	41.9	42.3	63.96	-1,747.4	-720.1	230.8	152.3	78.50	2.940		
10,100.0	7,732.1	10,012.2	7,630.6	43.6	44.0	63.90	-1,847.4	-720.1	230.9	149.3	81.59	2.830		
10,200.0	7,731.6	10,112.2	7,629.8	45.4	45.7	63.84	-1,947.4	-720.1	231.0	146.3	84.70	2.727		
10,300.0	7,731.1	10,212.2	7,628.9	47.1	47.4	63.77	-2,047.4	-720.1	231.2	143.3	87.84	2.631		
10,400.0	7,730.6	10,312.2	7,628.1	48.8	49.2	63.71	-2,147.4	-720.1	231.3	140.3	91.00	2.541		
10,500.0	7,730.0	10,412.2	7,627.3	50.6	50.9	63.65	-2,247.4	-720.1	231.4	137.2	94.18	2.457		
10,600.0	7,729.5	10,512.2	7,626.5	52.4	52.7	63.59	-2,347.4	-720.1	231.5	134.1	97.37	2.378		
10,700.0	7,729.0	10,612.2	7,625.7	54.1	54.5	63.53	-2,447.4	-720.1	231.6	131.1	100.58	2.303		
10,800.0	7,728.5	10,712.2	7,624.9	55.9	56.2	63.46	-2,547.4	-720.1	231.8	128.0	103.80	2.233		
10,900.0	7,728.0	10,812.2	7,624.1	57.7	58.0	63.40	-2,647.4	-720.1	231.9	124.9	107.04	2.166		
11,000.0	7,727.4	10,912.2	7,623.3	59.5	59.8	63.34	-2,747.4	-720.1	232.0	121.7	110.28	2.104		
11,100.0	7,726.9	11,012.2	7,622.5	61.3	61.6	63.28	-2,847.4	-720.1	232.1	118.6	113.53	2.045		
11,200.0	7,726.4	11,112.2	7,621.7	63.2	63.4	63.22	-2,947.4	-720.1	232.3	115.5	116.79	1.989		
11,300.0	7,725.9	11,212.2	7,620.9	65.0	65.2	63.16	-3,047.4	-720.1	232.4	112.3	120.06	1.936		
11,400.0	7,725.3	11,312.2	7,620.1	66.8	67.0	63.10	-3,147.4	-720.1	232.5	109.2	123.34	1.885		
11,500.0	7,724.8	11,412.2	7,619.3	68.6	68.9	63.03	-3,247.4	-720.1	232.7	106.0	126.62	1.837		
11,600.0	7,724.3	11,512.2	7,618.5	70.5	70.7	62.97	-3,347.4	-720.1	232.8	102.9	129.90	1.792		
11,700.0	7,723.8	11,612.2	7,617.7	72.3	72.5	62.91	-3,447.4	-720.1	232.9	99.7	133.19	1.749		
11,800.0	7,723.2	11,712.2	7,616.9	74.1	74.4	62.85	-3,547.4	-720.1	233.0	96.6	136.48	1.707		
11,900.0	7,722.7	11,812.2	7,616.1	76.0	76.2	62.79	-3,647.3	-720.1	233.2	93.4	139.77	1.668		
12,000.0	7,722.2	11,912.2	7,615.3	77.8	78.0	62.73	-3,747.3	-720.1	233.3	90.2	143.07	1.631		
12,036.7	7,722.0	11,948.9	7,615.0	78.5	78.7	62.71	-3,784.1	-720.1	233.3	89.1	144.28	1.617 SF		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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		Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 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	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			
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	30.8	30.8	29.7	1.12	27.423			
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	30.8	30.8	29.2	1.57	19.588	CC, ES		
500.0	500.0	500.0	500.0	1.0	1.0	126.04	0.0	30.8	31.6	29.5	2.02	15.617			
600.0	599.9	599.9	599.9	1.2	1.2	131.36	0.0	30.8	34.0	31.6	2.47	13.770			
700.0	699.7	699.7	699.7	1.5	1.5	138.60	0.0	30.8	38.7	35.7	2.93	13.213			
800.0	799.3	799.3	799.3	1.7	1.7	146.10	0.0	30.8	45.9	42.6	3.39	13.569			
900.0	898.6	899.7	899.7	2.0	1.9	151.99	1.2	30.3	55.1	51.2	3.84	14.324			
1,000.0	997.5	1,000.5	1,000.4	2.3	2.1	155.83	4.8	28.6	64.8	60.5	4.30	15.064			
1,092.5	1,088.7	1,093.9	1,093.6	2.6	2.3	158.19	10.3	26.1	74.2	69.4	4.73	15.679			
1,100.0	1,096.1	1,101.5	1,101.1	2.6	2.4	158.34	10.8	25.9	74.9	70.2	4.76	15.725			
1,200.0	1,194.5	1,202.9	1,202.1	3.0	2.6	159.66	19.3	22.0	83.9	78.7	5.24	16.017			
1,300.0	1,292.8	1,304.7	1,303.2	3.3	2.9	159.91	30.3	17.0	90.6	84.9	5.73	15.819			
1,400.0	1,391.2	1,406.7	1,404.2	3.7	3.2	159.31	43.8	10.9	95.0	88.7	6.24	15.233			
1,500.0	1,489.5	1,508.3	1,504.3	4.1	3.5	157.97	59.5	3.7	97.2	90.4	6.77	14.356			
1,600.0	1,587.9	1,608.3	1,602.6	4.5	3.8	156.49	75.7	-3.7	98.8	91.4	7.32	13.494			
1,700.0	1,686.3	1,708.2	1,701.0	4.9	4.1	155.05	91.9	-11.0	100.4	92.5	7.89	12.730			
1,800.0	1,784.6	1,808.2	1,799.4	5.3	4.5	153.65	108.1	-18.4	102.1	93.7	8.47	12.054			
1,900.0	1,883.0	1,908.1	1,897.7	5.7	4.8	152.31	124.3	-25.8	103.9	94.9	9.08	11.450			
2,000.0	1,981.3	2,008.1	1,996.1	6.1	5.2	151.01	140.4	-33.1	105.8	96.1	9.69	10.910			
2,100.0	2,079.7	2,108.0	2,094.4	6.4	5.6	149.75	156.6	-40.5	107.7	97.3	10.33	10.425			
2,200.0	2,178.1	2,208.0	2,192.8	6.8	5.9	148.54	172.8	-47.9	109.6	98.6	10.97	9.989			
2,300.0	2,276.4	2,308.0	2,291.2	7.2	6.3	147.37	189.0	-55.2	111.6	100.0	11.63	9.594			
2,400.0	2,374.8	2,407.9	2,389.5	7.6	6.7	146.25	205.2	-62.6	113.6	101.3	12.30	9.236			
2,500.0	2,473.1	2,507.9	2,487.9	8.0	7.1	145.16	221.4	-70.0	115.7	102.7	12.98	8.912			
2,600.0	2,571.5	2,607.8	2,586.2	8.4	7.5	144.11	237.6	-77.3	117.8	104.1	13.67	8.616			
2,700.0	2,669.9	2,707.8	2,684.6	8.8	7.8	143.10	253.7	-84.7	120.0	105.6	14.38	8.345			
2,800.0	2,768.2	2,807.7	2,783.0	9.2	8.2	142.13	269.9	-92.1	122.2	107.1	15.09	8.098			
2,900.0	2,866.6	2,907.7	2,881.3	9.6	8.6	141.19	286.1	-99.4	124.4	108.6	15.80	7.871			
3,000.0	2,964.9	3,007.6	2,979.7	10.0	9.0	140.28	302.3	-106.8	126.6	110.1	16.53	7.662			
3,100.0	3,063.3	3,107.6	3,078.0	10.4	9.4	139.40	318.5	-114.2	128.9	111.7	17.26	7.469			
3,200.0	3,161.7	3,207.5	3,176.4	10.8	9.8	138.56	334.7	-121.6	131.2	113.2	18.00	7.291			
3,300.0	3,260.0	3,307.5	3,274.8	11.3	10.2	137.74	350.8	-128.9	133.6	114.8	18.74	7.127			
3,400.0	3,358.4	3,407.5	3,373.1	11.7	10.6	136.96	367.0	-136.3	136.0	116.5	19.49	6.974			
3,500.0	3,456.8	3,507.4	3,471.5	12.1	11.0	136.20	383.2	-143.7	138.4	118.1	20.25	6.833			
3,600.0	3,555.1	3,607.4	3,569.8	12.5	11.3	135.46	399.4	-151.0	140.8	119.8	21.01	6.701			
3,700.0	3,653.5	3,707.3	3,668.2	12.9	11.7	134.75	415.6	-158.4	143.2	121.4	21.77	6.578			
3,800.0	3,751.8	3,807.3	3,766.6	13.3	12.1	134.07	431.8	-165.8	145.7	123.1	22.54	6.463			
3,900.0	3,850.2	3,907.2	3,864.9	13.7	12.5	133.41	448.0	-173.1	148.2	124.8	23.31	6.356			
4,000.0	3,948.6	4,007.2	3,963.3	14.1	12.9	132.77	464.1	-180.5	150.7	126.6	24.08	6.255			
4,100.0	4,046.9	4,107.1	4,061.6	14.5	13.3	132.15	480.3	-187.9	153.2	128.3	24.86	6.161			
4,200.0	4,145.3	4,207.1	4,160.0	14.9	13.7	131.55	496.5	-195.2	155.7	130.1	25.64	6.073			
4,300.0	4,243.6	4,307.0	4,258.4	15.3	14.1	130.97	512.7	-202.6	158.3	131.8	26.42	5.990			
4,400.0	4,342.0	4,407.0	4,356.7	15.7	14.5	130.41	528.9	-210.0	160.8	133.6	27.21	5.912			
4,500.0	4,440.4	4,507.0	4,455.1	16.1	14.9	129.86	545.1	-217.3	163.4	135.4	27.99	5.838			
4,600.0	4,538.7	4,606.9	4,553.4	16.5	15.3	129.34	561.2	-224.7	166.0	137.2	28.78	5.768			
4,700.0	4,637.1	4,706.9	4,651.8	16.9	15.7	128.83	577.4	-232.1	168.6	139.1	29.57	5.702			
4,800.0	4,735.4	4,806.8	4,750.2	17.3	16.1	128.33	593.6	-239.5	171.2	140.9	30.36	5.640			
4,900.0	4,833.8	4,906.8	4,848.5	17.7	16.5	127.85	609.8	-246.8	173.9	142.7	31.16	5.581			

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 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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 6E-223 - 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	4,932.2	5,006.7	4,946.9	18.1	16.9	127.38	626.0	-254.2	176.5	144.6	31.95	5.525	
5,100.0	5,030.5	5,106.7	5,045.2	18.5	17.3	126.93	642.2	-261.6	179.2	146.4	32.75	5.472	
5,200.0	5,128.9	5,206.6	5,143.6	18.9	17.7	126.49	658.4	-268.9	181.9	148.3	33.54	5.422	
5,300.0	5,227.3	5,306.6	5,242.0	19.3	18.1	126.07	674.5	-276.3	184.5	150.2	34.34	5.374	
5,400.0	5,325.6	5,406.6	5,340.3	19.7	18.5	125.66	690.7	-283.7	187.2	152.1	35.14	5.328	
5,500.0	5,424.0	5,506.5	5,438.7	20.1	18.9	125.25	706.9	-291.0	189.9	154.0	35.94	5.285	
5,560.5	5,483.5	5,566.7	5,497.9	20.4	19.1	125.02	716.6	-295.5	191.6	155.2	36.42	5.260	
5,600.0	5,522.4	5,605.1	5,535.8	20.5	19.2	124.92	722.5	-298.2	192.6	156.0	36.69	5.251	
5,700.0	5,621.3	5,702.3	5,631.9	20.8	19.5	124.71	735.4	-304.0	195.0	157.7	37.26	5.234	
5,800.0	5,720.6	5,800.0	5,729.0	21.0	19.7	124.55	745.3	-308.5	196.8	159.1	37.75	5.214	
5,900.0	5,820.3	5,896.6	5,825.3	21.2	19.9	124.44	752.1	-311.6	198.1	159.9	38.15	5.192	
6,000.0	5,920.2	5,993.8	5,922.4	21.4	20.1	124.38	756.0	-313.4	198.8	160.3	38.47	5.167	
6,079.9	6,000.0	6,071.4	6,000.0	21.5	20.2	90.29	757.0	-313.8	198.9	160.3	38.67	5.145	
6,086.6	6,006.7	6,078.1	6,006.7	21.5	20.2	90.29	757.0	-313.8	198.9	160.3	38.68	5.143	
6,100.0	6,020.1	6,091.5	6,020.1	21.5	20.2	90.29	757.0	-313.8	198.9	160.2	38.72	5.138	
6,200.0	6,120.1	6,191.5	6,120.1	21.7	20.4	90.29	757.0	-313.8	198.9	159.9	39.01	5.100	
6,300.0	6,220.1	6,291.5	6,220.1	21.8	20.5	90.29	757.0	-313.8	198.9	159.6	39.31	5.061	
6,400.0	6,320.1	6,391.5	6,320.1	21.9	20.6	90.29	757.0	-313.8	198.9	159.3	39.61	5.023	
6,500.0	6,420.1	6,491.5	6,420.1	22.1	20.8	90.29	757.0	-313.8	198.9	159.0	39.91	4.985	
6,600.0	6,520.1	6,591.5	6,520.1	22.2	20.9	90.29	757.0	-313.8	198.9	158.7	40.21	4.948	
6,700.0	6,620.1	6,691.5	6,620.1	22.4	21.1	90.29	757.0	-313.8	198.9	158.4	40.52	4.910	
6,800.0	6,720.1	6,791.5	6,720.1	22.5	21.2	90.29	757.0	-313.8	198.9	158.1	40.83	4.873	
6,900.0	6,820.1	6,891.5	6,820.1	22.6	21.4	90.29	757.0	-313.8	198.9	157.8	41.14	4.836	
6,952.9	6,873.1	6,944.5	6,873.1	22.7	21.5	90.29	757.0	-313.8	198.9	157.6	41.31	4.816	
7,000.0	6,920.1	6,991.4	6,920.0	22.8	21.5	90.57	756.0	-313.8	199.0	157.6	41.39	4.807	
7,057.7	6,977.8	7,048.6	6,976.9	22.9	21.6	92.02	751.0	-313.8	199.1	157.8	41.26	4.824	
7,100.0	7,020.1	7,090.0	7,017.9	22.9	21.5	-86.48	744.7	-313.8	199.3	158.3	41.04	4.857	
7,150.0	7,069.9	7,138.7	7,065.5	22.9	21.5	-84.73	734.5	-313.8	199.8	159.1	40.70	4.909	
7,200.0	7,119.3	7,187.0	7,111.9	22.9	21.5	-83.02	721.4	-313.8	200.5	160.1	40.31	4.972	
7,250.0	7,168.1	7,234.9	7,157.1	22.9	21.4	-81.35	705.5	-313.8	201.3	161.4	39.88	5.047	
7,300.0	7,216.1	7,282.5	7,200.9	22.8	21.3	-79.73	686.9	-313.8	202.2	162.8	39.40	5.133	
7,350.0	7,263.1	7,329.7	7,243.2	22.7	21.1	-78.18	665.9	-313.8	203.3	164.4	38.89	5.228	
7,400.0	7,308.8	7,376.7	7,283.9	22.6	21.0	-76.69	642.4	-313.8	204.5	166.1	38.35	5.333	
7,450.0	7,353.1	7,423.4	7,322.8	22.5	20.9	-75.28	616.6	-313.8	205.8	168.0	37.79	5.444	
7,500.0	7,395.8	7,469.8	7,359.8	22.4	20.7	-73.94	588.6	-313.8	207.1	169.9	37.23	5.563	
7,550.0	7,436.8	7,515.9	7,394.9	22.2	20.5	-72.68	558.7	-313.8	208.5	171.8	36.67	5.686	
7,600.0	7,475.7	7,561.8	7,427.9	22.0	20.4	-71.50	526.8	-313.8	209.9	173.8	36.11	5.812	
7,650.0	7,512.6	7,607.5	7,458.9	21.8	20.2	-70.41	493.2	-313.8	211.2	175.7	35.57	5.939	
7,700.0	7,547.1	7,653.0	7,487.6	21.7	20.0	-69.41	457.9	-313.8	212.6	177.5	35.06	6.065	
7,750.0	7,579.2	7,700.0	7,515.0	21.5	19.9	-68.46	419.8	-313.8	213.9	179.4	34.57	6.189	
7,800.0	7,608.7	7,743.5	7,538.3	21.3	19.7	-67.66	383.0	-313.8	215.2	181.0	34.15	6.300	
7,850.0	7,635.5	7,788.5	7,560.1	21.1	19.6	-66.91	343.7	-313.8	216.3	182.5	33.78	6.404	
7,900.0	7,659.6	7,833.3	7,579.5	20.9	19.4	-66.26	303.2	-313.8	217.4	183.9	33.48	6.493	
7,950.0	7,680.6	7,878.1	7,596.5	20.7	19.3	-65.69	261.8	-313.8	218.3	185.1	33.25	6.565	
8,000.0	7,698.7	7,922.7	7,610.9	20.6	19.2	-65.21	219.6	-313.8	219.2	186.0	33.12	6.618	
8,050.0	7,713.7	7,967.3	7,622.9	20.4	19.1	-64.82	176.7	-313.8	219.8	186.8	33.07	6.648	
8,100.0	7,725.6	8,011.8	7,632.3	20.3	19.1	-64.52	133.2	-313.8	220.4	187.3	33.12	6.654	
8,150.0	7,734.2	8,056.2	7,639.2	20.1	19.0	-64.30	89.3	-313.8	220.8	187.5	33.27	6.636	
8,200.0	7,739.6	8,100.0	7,643.5	20.0	19.0	-64.17	45.8	-313.8	221.0	187.5	33.52	6.594	
8,250.0	7,741.7	8,145.0	7,645.3	19.9	19.1	-64.13	0.8	-313.8	221.1	187.2	33.87	6.528	
8,261.7	7,741.8	8,155.4	7,645.3	19.9	19.1	-64.13	-9.6	-313.8	221.1	187.1	33.96	6.510	

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 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-323	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-223 - 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	
8,263.2	7,741.8	8,156.8	7,645.3	19.9	19.1	-64.13	-10.9	-313.8		221.1	187.1	33.97	6.508	
8,300.0	7,741.6	8,193.3	7,645.0	19.8	19.2	-64.11	-47.5	-313.8		221.1	186.9	34.23	6.460	
8,400.0	7,741.0	8,293.3	7,644.2	20.0	19.7	-64.04	-147.5	-313.8		221.3	186.1	35.16	6.293	
8,500.0	7,740.5	8,393.3	7,643.4	20.8	20.4	-63.98	-247.5	-313.8		221.4	185.0	36.40	6.081	
8,600.0	7,740.0	8,493.3	7,642.6	21.7	21.3	-63.91	-347.5	-313.8		221.5	183.6	37.93	5.840	
8,700.0	7,739.5	8,593.3	7,641.8	22.7	22.3	-63.85	-447.5	-313.8		221.6	181.9	39.70	5.583	
8,800.0	7,738.9	8,693.3	7,641.0	23.9	23.4	-63.79	-547.5	-313.8		221.8	180.1	41.68	5.320	
8,900.0	7,738.4	8,793.3	7,640.2	25.1	24.6	-63.72	-647.5	-313.8		221.9	178.0	43.86	5.059	
9,000.0	7,737.9	8,893.3	7,639.4	26.4	25.9	-63.66	-747.5	-313.8		222.0	175.8	46.19	4.806	
9,100.0	7,737.4	8,993.3	7,638.6	27.8	27.3	-63.59	-847.5	-313.8		222.1	173.5	48.66	4.565	
9,200.0	7,736.9	9,093.3	7,637.8	29.2	28.7	-63.53	-947.4	-313.8		222.3	171.0	51.24	4.338	
9,300.0	7,736.3	9,193.3	7,637.0	30.7	30.2	-63.46	-1,047.4	-313.8		222.4	168.5	53.92	4.124	
9,400.0	7,735.8	9,293.3	7,636.2	32.2	31.8	-63.40	-1,147.4	-313.8		222.5	165.8	56.68	3.926	
9,500.0	7,735.3	9,393.3	7,635.4	33.7	33.3	-63.33	-1,247.4	-313.8		222.6	163.1	59.52	3.741	
9,600.0	7,734.8	9,493.3	7,634.6	35.3	34.9	-63.27	-1,347.4	-313.8		222.8	160.3	62.41	3.569	
9,700.0	7,734.2	9,593.3	7,633.8	36.9	36.5	-63.21	-1,447.4	-313.8		222.9	157.5	65.36	3.410	
9,800.0	7,733.7	9,693.3	7,633.0	38.6	38.2	-63.14	-1,547.4	-313.8		223.0	154.7	68.35	3.263	
9,900.0	7,733.2	9,793.3	7,632.2	40.3	39.9	-63.08	-1,647.4	-313.8		223.1	151.7	71.38	3.126	
10,000.0	7,732.7	9,893.3	7,631.4	41.9	41.6	-63.01	-1,747.4	-313.8		223.3	148.8	74.45	2.999	
10,100.0	7,732.1	9,993.3	7,630.6	43.6	43.3	-62.95	-1,847.4	-313.8		223.4	145.8	77.54	2.881	
10,200.0	7,731.6	10,093.3	7,629.8	45.4	45.0	-62.89	-1,947.4	-313.8		223.5	142.8	80.67	2.771	
10,300.0	7,731.1	10,193.3	7,628.9	47.1	46.8	-62.82	-2,047.4	-313.8		223.6	139.8	83.81	2.668	
10,400.0	7,730.6	10,293.3	7,628.1	48.8	48.5	-62.76	-2,147.4	-313.8		223.8	136.8	86.97	2.573	
10,500.0	7,730.0	10,393.3	7,627.3	50.6	50.3	-62.70	-2,247.4	-313.8		223.9	133.7	90.15	2.484	
10,600.0	7,729.5	10,493.3	7,626.5	52.4	52.1	-62.63	-2,347.4	-313.8		224.0	130.7	93.34	2.400	
10,700.0	7,729.0	10,593.3	7,625.7	54.1	53.9	-62.57	-2,447.4	-313.8		224.2	127.6	96.55	2.322	
10,800.0	7,728.5	10,693.3	7,624.9	55.9	55.7	-62.51	-2,547.4	-313.8		224.3	124.5	99.77	2.248	
10,900.0	7,728.0	10,793.3	7,624.1	57.7	57.5	-62.44	-2,647.4	-313.8		224.4	121.4	103.00	2.179	
11,000.0	7,727.4	10,893.3	7,623.3	59.5	59.3	-62.38	-2,747.4	-313.8		224.5	118.3	106.24	2.114	
11,100.0	7,726.9	10,993.3	7,622.5	61.3	61.1	-62.32	-2,847.4	-313.8		224.7	115.2	109.48	2.052	
11,200.0	7,726.4	11,093.3	7,621.7	63.2	62.9	-62.25	-2,947.4	-313.8		224.8	112.1	112.73	1.994	
11,300.0	7,725.9	11,193.3	7,620.9	65.0	64.7	-62.19	-3,047.4	-313.8		224.9	108.9	115.99	1.939	
11,400.0	7,725.3	11,293.3	7,620.1	66.8	66.6	-62.13	-3,147.4	-313.8		225.1	105.8	119.26	1.887	
11,500.0	7,724.8	11,393.3	7,619.3	68.6	68.4	-62.06	-3,247.4	-313.8		225.2	102.7	122.52	1.838	
11,600.0	7,724.3	11,493.3	7,618.5	70.5	70.2	-62.00	-3,347.4	-313.8		225.3	99.5	125.79	1.791	
11,700.0	7,723.8	11,593.3	7,617.7	72.3	72.1	-61.94	-3,447.4	-313.8		225.5	96.4	129.07	1.747	
11,800.0	7,723.2	11,693.3	7,616.9	74.1	73.9	-61.88	-3,547.4	-313.8		225.6	93.2	132.35	1.705	
11,900.0	7,722.7	11,793.3	7,616.1	76.0	75.8	-61.81	-3,647.3	-313.8		225.7	90.1	135.63	1.664	
12,000.0	7,722.2	11,893.3	7,615.3	77.8	77.6	-61.75	-3,747.3	-313.8		225.8	86.9	138.91	1.626	
12,036.7	7,722.0	11,930.0	7,615.0	78.5	78.2	-61.73	-3,784.1	-313.8		225.9	85.9	140.01	1.613 SF	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	87.67	3.6	89.7	89.7				
100.0	100.0	99.0	99.0	0.1	0.1	87.67	3.6	89.7	89.7	89.5	0.22	401.212	
200.0	200.0	199.0	199.0	0.3	0.3	87.67	3.6	89.7	89.7	89.1	0.67	133.515	
300.0	300.0	299.0	299.0	0.6	0.6	87.67	3.6	89.7	89.7	88.6	1.12	80.002	
400.0	400.0	399.0	399.0	0.8	0.8	87.67	3.6	89.7	89.7	88.2	1.57	57.112 CC, ES	
500.0	500.0	499.0	499.0	1.0	1.0	122.45	3.6	89.7	90.4	88.4	2.02	44.785	
600.0	599.9	598.9	598.9	1.2	1.2	124.47	3.6	89.7	92.6	90.1	2.47	37.515	
700.0	699.7	698.7	698.7	1.5	1.5	127.63	3.6	89.7	96.4	93.5	2.92	32.995	
800.0	799.3	798.3	798.3	1.7	1.7	131.61	3.6	89.7	102.3	98.9	3.39	30.215	
900.0	898.6	897.6	897.6	2.0	1.9	136.07	3.6	89.7	110.5	106.6	3.86	28.654	
1,000.0	997.5	996.5	996.5	2.3	2.1	140.66	3.6	89.7	121.3	116.9	4.33	28.001	
1,092.5	1,088.7	1,087.7	1,087.7	2.6	2.3	144.77	3.6	89.7	133.7	129.0	4.77	28.026	
1,100.0	1,096.1	1,095.1	1,095.1	2.6	2.3	145.09	3.6	89.7	134.8	130.0	4.81	28.049	
1,200.0	1,194.5	1,193.5	1,193.5	3.0	2.6	149.02	3.6	89.7	150.1	144.8	5.28	28.415	
1,300.0	1,292.8	1,292.5	1,292.5	3.3	2.8	151.85	4.7	90.0	165.6	159.9	5.75	28.788	
1,400.0	1,391.2	1,392.0	1,391.9	3.7	3.0	153.40	8.2	91.2	181.0	174.8	6.23	29.050	
1,500.0	1,489.5	1,491.9	1,491.6	4.1	3.2	153.95	14.2	93.2	196.0	189.3	6.72	29.161	
1,600.0	1,587.9	1,591.9	1,591.2	4.5	3.5	153.72	22.7	96.0	210.4	203.2	7.23	29.117	
1,700.0	1,686.3	1,692.0	1,690.6	4.9	3.7	152.86	33.7	99.7	224.4	216.6	7.76	28.925	
1,800.0	1,784.6	1,791.9	1,789.6	5.3	4.0	151.47	47.1	104.1	237.9	229.6	8.32	28.602	
1,900.0	1,883.0	1,891.2	1,887.5	5.7	4.3	149.74	62.5	109.2	251.3	242.4	8.91	28.192	
2,000.0	1,981.3	1,990.0	1,985.0	6.1	4.5	148.14	78.0	114.4	264.9	255.3	9.53	27.789	
2,100.0	2,079.7	2,088.9	2,082.4	6.4	4.8	146.70	93.6	119.6	278.6	268.4	10.16	27.409	
2,200.0	2,178.1	2,187.7	2,179.9	6.8	5.2	145.39	109.1	124.8	292.5	281.7	10.81	27.053	
2,300.0	2,276.4	2,286.5	2,277.3	7.2	5.5	144.20	124.7	130.0	306.5	295.1	11.47	26.724	
2,400.0	2,374.8	2,385.3	2,374.8	7.6	5.8	143.11	140.2	135.2	320.7	308.5	12.14	26.420	
2,500.0	2,473.1	2,484.1	2,472.2	8.0	6.1	142.12	155.8	140.3	334.9	322.1	12.81	26.139	
2,600.0	2,571.5	2,583.0	2,569.7	8.4	6.5	141.20	171.4	145.5	349.3	335.8	13.50	25.881	
2,700.0	2,669.9	2,681.8	2,667.1	8.8	6.8	140.36	186.9	150.7	363.7	349.5	14.18	25.643	
2,800.0	2,768.2	2,780.6	2,764.6	9.2	7.2	139.59	202.5	155.9	378.2	363.3	14.88	25.423	
2,900.0	2,866.6	2,879.4	2,862.0	9.6	7.5	138.87	218.0	161.1	392.7	377.2	15.57	25.221	
3,000.0	2,964.9	2,978.2	2,959.5	10.0	7.8	138.20	233.6	166.3	407.4	391.1	16.27	25.035	
3,100.0	3,063.3	3,077.0	3,056.9	10.4	8.2	137.58	249.2	171.4	422.0	405.0	16.97	24.862	
3,200.0	3,161.7	3,175.9	3,154.4	10.8	8.6	137.00	264.7	176.6	436.7	419.0	17.68	24.702	
3,300.0	3,260.0	3,274.7	3,251.8	11.3	8.9	136.45	280.3	181.8	451.5	433.1	18.39	24.554	
3,400.0	3,358.4	3,373.5	3,349.2	11.7	9.3	135.95	295.8	187.0	466.3	447.2	19.10	24.416	
3,500.0	3,456.8	3,472.3	3,446.7	12.1	9.6	135.47	311.4	192.2	481.1	461.3	19.81	24.288	
3,600.0	3,555.1	3,571.1	3,544.1	12.5	10.0	135.02	326.9	197.4	495.9	475.4	20.52	24.169	
3,700.0	3,653.5	3,670.0	3,641.6	12.9	10.3	134.60	342.5	202.5	510.8	489.6	21.23	24.057	
3,800.0	3,751.8	3,768.8	3,739.0	13.3	10.7	134.20	358.1	207.7	525.7	503.8	21.95	23.953	
3,900.0	3,850.2	3,867.6	3,836.5	13.7	11.1	133.82	373.6	212.9	540.7	518.0	22.66	23.855	
4,000.0	3,948.6	3,966.4	3,933.9	14.1	11.4	133.47	389.2	218.1	555.6	532.2	23.38	23.763	
4,100.0	4,046.9	4,065.2	4,031.4	14.5	11.8	133.13	404.7	223.3	570.6	546.5	24.10	23.677	
4,200.0	4,145.3	4,164.1	4,128.8	14.9	12.1	132.81	420.3	228.5	585.6	560.7	24.82	23.595	
4,300.0	4,243.6	4,262.9	4,226.3	15.3	12.5	132.50	435.8	233.6	600.6	575.0	25.54	23.519	
4,400.0	4,342.0	4,361.7	4,323.7	15.7	12.9	132.21	451.4	238.8	615.6	589.3	26.26	23.446	
4,500.0	4,440.4	4,460.5	4,421.2	16.1	13.2	131.94	467.0	244.0	630.6	603.6	26.98	23.378	
4,600.0	4,538.7	4,559.3	4,518.6	16.5	13.6	131.68	482.5	249.2	645.7	618.0	27.70	23.313	
4,700.0	4,637.1	4,658.1	4,616.1	16.9	14.0	131.42	498.1	254.4	660.7	632.3	28.42	23.252	
4,800.0	4,735.4	4,757.0	4,713.5	17.3	14.3	131.19	513.6	259.6	675.8	646.7	29.14	23.194	
4,900.0	4,833.8	4,855.8	4,811.0	17.7	14.7	130.96	529.2	264.7	690.9	661.0	29.86	23.138	

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 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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				
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	4,932.2	4,954.6	4,908.4	18.1	15.1	130.74	544.8	269.9	706.0	675.4	30.58	23.086	
5,100.0	5,030.5	5,053.4	5,005.9	18.5	15.4	130.53	560.3	275.1	721.1	689.8	31.30	23.036	
5,200.0	5,128.9	5,152.2	5,103.3	18.9	15.8	130.32	575.9	280.3	736.2	704.2	32.03	22.988	
5,300.0	5,227.3	5,251.1	5,200.8	19.3	16.2	130.13	591.4	285.5	751.3	718.6	32.75	22.942	
5,400.0	5,325.6	5,349.9	5,298.2	19.7	16.5	129.94	607.0	290.7	766.5	733.0	33.47	22.899	
5,500.0	5,424.0	5,448.7	5,395.7	20.1	16.9	129.77	622.5	295.8	781.6	747.4	34.20	22.857	
5,560.5	5,483.5	5,508.5	5,454.6	20.4	17.1	129.66	632.0	299.0	790.8	756.1	34.63	22.833	
5,600.0	5,522.4	5,547.5	5,493.1	20.5	17.3	129.67	638.1	301.0	796.6	761.7	34.92	22.814	
5,700.0	5,621.3	5,646.5	5,590.8	20.8	17.6	129.54	653.7	306.2	809.8	774.2	35.59	22.755	
5,800.0	5,720.6	5,745.7	5,688.5	21.0	18.0	129.19	669.3	311.4	820.8	784.6	36.23	22.654	
5,900.0	5,820.3	5,844.8	5,786.2	21.2	18.4	128.65	684.9	316.6	829.7	792.9	36.85	22.518	
6,000.0	5,920.2	5,943.7	5,883.8	21.4	18.8	127.90	700.5	321.8	836.6	799.2	37.43	22.350	
6,079.9	6,000.0	6,022.6	5,961.6	21.5	19.1	93.08	712.9	325.9	840.8	802.9	37.88	22.197	
6,100.0	6,020.1	6,042.4	5,981.2	21.5	19.1	92.86	716.0	327.0	841.7	803.7	37.99	22.153	
6,200.0	6,120.1	6,146.2	6,083.6	21.7	19.5	91.78	731.8	332.2	846.2	807.6	38.54	21.954	
6,300.0	6,220.1	6,254.9	6,191.4	21.8	19.7	90.89	744.8	336.6	849.9	810.9	39.02	21.781	
6,400.0	6,320.1	6,364.5	6,300.6	21.9	20.0	90.27	754.1	339.6	852.7	813.2	39.44	21.617	
6,500.0	6,420.1	6,474.7	6,410.7	22.1	20.2	89.91	759.3	341.4	854.2	814.4	39.81	21.458	
6,600.0	6,520.1	6,583.2	6,519.1	22.2	20.3	89.82	760.6	341.8	854.6	814.5	40.12	21.300	
6,700.0	6,620.1	6,683.2	6,619.1	22.4	20.5	89.82	760.6	341.8	854.6	814.2	40.43	21.139	
6,800.0	6,720.1	6,783.2	6,719.1	22.5	20.6	89.82	760.6	341.8	854.6	813.9	40.74	20.978	
6,900.0	6,820.1	6,883.2	6,819.1	22.6	20.8	89.82	760.6	341.8	854.6	813.6	41.05	20.818	
7,000.0	6,920.1	6,983.2	6,919.2	22.8	21.0	89.82	760.6	341.8	854.6	813.3	41.37	20.660	
7,056.7	6,976.9	7,040.0	6,975.9	22.9	21.0	90.00	758.0	341.8	854.6	813.1	41.50	20.596	
7,057.7	6,977.8	7,041.0	6,976.8	22.9	21.0	90.01	757.9	341.8	854.6	813.1	41.50	20.595	
7,100.0	7,020.1	7,083.0	7,018.6	22.9	21.0	-89.76	753.2	341.8	854.6	813.1	41.54	20.573	
7,150.0	7,069.9	7,132.5	7,067.3	22.9	21.0	-89.48	744.8	341.8	854.7	813.1	41.53	20.580	
7,200.0	7,119.3	7,181.7	7,115.1	22.9	20.9	-89.20	733.2	341.8	854.7	813.3	41.46	20.617	
7,250.0	7,168.1	7,230.6	7,161.9	22.9	20.9	-88.93	718.8	341.8	854.8	813.5	41.33	20.684	
7,300.0	7,216.1	7,279.3	7,207.4	22.8	20.8	-88.66	701.4	341.8	854.9	813.7	41.14	20.778	
7,350.0	7,263.1	7,327.8	7,251.4	22.7	20.7	-88.40	681.3	341.8	855.0	814.1	40.91	20.898	
7,400.0	7,308.8	7,376.0	7,293.9	22.6	20.5	-88.15	658.5	341.8	855.1	814.4	40.64	21.040	
7,450.0	7,353.1	7,424.0	7,334.7	22.5	20.4	-87.90	633.3	341.8	855.2	814.9	40.34	21.202	
7,500.0	7,395.8	7,471.8	7,373.7	22.4	20.2	-87.66	605.6	341.8	855.4	815.3	40.01	21.380	
7,550.0	7,436.8	7,519.4	7,410.7	22.2	20.0	-87.44	575.7	341.8	855.5	815.8	39.66	21.571	
7,600.0	7,475.7	7,566.8	7,445.7	22.0	19.9	-87.22	543.7	341.8	855.6	816.3	39.30	21.771	
7,650.0	7,512.6	7,614.0	7,478.5	21.8	19.7	-87.02	509.7	341.8	855.8	816.9	38.95	21.973	
7,700.0	7,547.1	7,661.1	7,509.0	21.7	19.5	-86.82	473.8	341.8	856.0	817.4	38.60	22.173	
7,750.0	7,579.2	7,708.0	7,537.2	21.5	19.3	-86.64	436.3	341.8	856.1	817.8	38.28	22.364	
7,800.0	7,608.7	7,754.8	7,562.9	21.3	19.2	-86.48	397.3	341.8	856.3	818.3	37.99	22.541	
7,850.0	7,635.5	7,800.0	7,585.4	21.1	19.0	-86.33	358.1	341.8	856.4	818.7	37.74	22.695	
7,900.0	7,659.6	7,848.0	7,606.8	20.9	18.9	-86.19	315.1	341.8	856.5	819.0	37.53	22.824	
7,950.0	7,680.6	7,894.5	7,624.9	20.7	18.8	-86.07	272.3	341.8	856.7	819.3	37.38	22.916	
8,000.0	7,698.7	7,940.9	7,640.3	20.6	18.7	-85.97	228.6	341.8	856.8	819.5	37.30	22.970	
8,050.0	7,713.7	7,987.2	7,653.0	20.4	18.7	-85.88	184.1	341.8	856.9	819.6	37.29	22.979	
8,100.0	7,725.6	8,033.4	7,663.0	20.3	18.7	-85.81	139.0	341.8	856.9	819.6	37.35	22.942	
8,150.0	7,734.2	8,079.6	7,670.2	20.1	18.7	-85.75	93.4	341.8	857.0	819.5	37.49	22.858	
8,200.0	7,739.6	8,125.7	7,674.7	20.0	18.8	-85.71	47.4	341.8	857.0	819.3	37.71	22.727	
8,250.0	7,741.7	8,171.8	7,676.3	19.9	18.9	-85.69	1.4	341.8	857.1	819.1	38.00	22.552	
8,261.7	7,741.8	8,182.6	7,676.3	19.9	18.9	-85.69	-9.4	341.8	857.1	819.0	38.08	22.506	
8,300.0	7,741.6	8,220.4	7,675.8	19.8	19.1	-85.66	-47.3	341.8	857.1	818.7	38.40	22.321	

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 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-323	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	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)				
8,400.0	7,741.0	8,320.4	7,674.2	20.0	19.6	-85.60	-147.3	341.8	857.2	817.7	39.44	21.736			
8,500.0	7,740.5	8,420.4	7,672.7	20.8	20.3	-85.53	-247.2	341.8	857.2	816.4	40.81	21.008			
8,600.0	7,740.0	8,520.4	7,671.2	21.7	21.2	-85.46	-347.2	341.8	857.3	814.8	42.48	20.184			
8,700.0	7,739.5	8,620.4	7,669.7	22.7	22.2	-85.40	-447.2	341.8	857.4	813.0	44.41	19.306			
8,800.0	7,738.9	8,720.4	7,668.2	23.9	23.3	-85.33	-547.2	341.8	857.5	810.9	46.58	18.409			
8,900.0	7,738.4	8,820.4	7,666.6	25.1	24.5	-85.27	-647.2	341.8	857.6	808.6	48.95	17.519			
9,000.0	7,737.9	8,920.4	7,665.1	26.4	25.8	-85.20	-747.2	341.9	857.7	806.2	51.49	16.656			
9,100.0	7,737.4	9,020.4	7,663.6	27.8	27.2	-85.13	-847.1	341.9	857.7	803.5	54.19	15.830			
9,200.0	7,736.9	9,120.4	7,662.1	29.2	28.6	-85.07	-947.1	341.9	857.8	800.8	57.01	15.048			
9,300.0	7,736.3	9,220.4	7,660.6	30.7	30.1	-85.00	-1,047.1	341.9	857.9	798.0	59.93	14.314			
9,400.0	7,735.8	9,320.4	7,659.1	32.2	31.6	-84.93	-1,147.1	341.9	858.0	795.0	62.96	13.628			
9,500.0	7,735.3	9,420.4	7,657.5	33.7	33.2	-84.87	-1,247.1	341.9	858.1	792.0	66.06	12.989			
9,600.0	7,734.8	9,520.4	7,656.0	35.3	34.8	-84.80	-1,347.1	341.9	858.2	788.9	69.24	12.394			
9,700.0	7,734.2	9,620.4	7,654.5	36.9	36.4	-84.74	-1,447.0	341.9	858.3	785.8	72.47	11.842			
9,800.0	7,733.7	9,720.4	7,653.0	38.6	38.1	-84.67	-1,547.0	341.9	858.4	782.6	75.76	11.330			
9,900.0	7,733.2	9,820.4	7,651.5	40.3	39.8	-84.60	-1,647.0	341.9	858.4	779.4	79.10	10.853			
10,000.0	7,732.7	9,920.4	7,649.9	41.9	41.5	-84.54	-1,747.0	341.9	858.5	776.1	82.47	10.410			
10,100.0	7,732.1	10,020.4	7,648.4	43.6	43.2	-84.47	-1,847.0	341.9	858.6	772.8	85.88	9.998			
10,200.0	7,731.6	10,120.4	7,646.9	45.4	44.9	-84.41	-1,947.0	341.9	858.7	769.4	89.32	9.614			
10,300.0	7,731.1	10,220.3	7,645.4	47.1	46.7	-84.34	-2,046.9	341.9	858.8	766.0	92.79	9.255			
10,400.0	7,730.6	10,320.3	7,643.9	48.8	48.4	-84.27	-2,146.9	341.9	858.9	762.6	96.29	8.921			
10,500.0	7,730.0	10,420.3	7,642.4	50.6	50.2	-84.21	-2,246.9	341.9	859.0	759.2	99.80	8.607			
10,600.0	7,729.5	10,520.3	7,640.8	52.4	52.0	-84.14	-2,346.9	341.9	859.1	755.8	103.34	8.314			
10,700.0	7,729.0	10,620.3	7,639.3	54.1	53.8	-84.08	-2,446.9	341.9	859.2	752.3	106.89	8.038			
10,800.0	7,728.5	10,720.3	7,637.8	55.9	55.6	-84.01	-2,546.9	341.9	859.3	748.9	110.46	7.780			
10,900.0	7,728.0	10,820.3	7,636.3	57.7	57.4	-83.94	-2,646.8	341.9	859.4	745.4	114.04	7.536			
11,000.0	7,727.4	10,920.3	7,634.8	59.5	59.2	-83.88	-2,746.8	341.9	859.6	741.9	117.64	7.307			
11,100.0	7,726.9	11,020.3	7,633.2	61.3	61.0	-83.81	-2,846.8	341.9	859.7	738.4	121.25	7.090			
11,200.0	7,726.4	11,120.3	7,631.7	63.2	62.8	-83.75	-2,946.8	341.9	859.8	734.9	124.87	6.886			
11,300.0	7,725.9	11,220.3	7,630.2	65.0	64.7	-83.68	-3,046.8	341.9	859.9	731.4	128.49	6.692			
11,400.0	7,725.3	11,320.3	7,628.7	66.8	66.5	-83.61	-3,146.8	341.9	860.0	727.9	132.13	6.509			
11,500.0	7,724.8	11,420.3	7,627.2	68.6	68.3	-83.55	-3,246.7	341.9	860.1	724.3	135.77	6.335			
11,600.0	7,724.3	11,520.3	7,625.7	70.5	70.2	-83.48	-3,346.7	341.9	860.2	720.8	139.42	6.170			
11,700.0	7,723.8	11,620.3	7,624.1	72.3	72.0	-83.42	-3,446.7	341.9	860.3	717.2	143.08	6.013			
11,800.0	7,723.2	11,720.3	7,622.6	74.1	73.9	-83.35	-3,546.7	341.9	860.4	713.7	146.74	5.864			
11,900.0	7,722.7	11,820.3	7,621.1	76.0	75.7	-83.29	-3,646.7	341.9	860.6	710.1	150.41	5.721			
12,000.0	7,722.2	11,920.3	7,619.6	77.8	77.6	-83.22	-3,746.7	341.9	860.7	706.6	154.09	5.586			
12,036.7	7,722.0	11,957.0	7,619.0	78.5	78.3	-83.20	-3,783.4	341.9	860.7	705.3	155.44	5.537 SF			

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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-443 - 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
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	58.8	58.8				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	58.8	58.8	58.6	0.22	263.078	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	58.8	58.8	58.2	0.67	87.547	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	58.8	58.8	57.7	1.12	52.458	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	58.8	58.8	57.3	1.57	37.449 CC, ES	
500.0	500.0	499.0	499.0	1.0	1.0	125.11	0.0	58.8	59.6	57.6	2.02	29.506	
600.0	599.9	598.9	598.9	1.2	1.2	128.06	0.0	58.8	61.9	59.5	2.47	25.084	
700.0	699.7	698.7	698.7	1.5	1.5	132.47	0.0	58.8	66.2	63.2	2.92	22.630	
800.0	799.3	798.3	798.3	1.7	1.7	137.72	0.0	58.8	72.7	69.3	3.38	21.468	
900.0	898.6	897.6	897.6	2.0	1.9	143.18	0.0	58.8	81.8	77.9	3.85	21.236	
1,000.0	997.5	996.5	996.5	2.3	2.1	148.33	0.0	58.8	93.7	89.4	4.32	21.699	
1,092.5	1,088.7	1,087.7	1,087.7	2.6	2.3	152.60	0.0	58.8	107.3	102.5	4.75	22.594	
1,100.0	1,096.1	1,095.1	1,095.1	2.6	2.3	152.92	0.0	58.8	108.5	103.7	4.78	22.682	
1,200.0	1,194.5	1,193.5	1,193.5	3.0	2.6	156.68	0.0	58.8	124.9	119.6	5.25	23.800	
1,300.0	1,292.8	1,291.8	1,291.8	3.3	2.8	159.57	0.0	58.8	141.6	135.9	5.71	24.808	
1,400.0	1,391.2	1,390.2	1,390.2	3.7	3.0	161.84	0.0	58.8	158.7	152.5	6.17	25.707	
1,500.0	1,489.5	1,488.5	1,488.5	4.1	3.2	163.67	0.0	58.8	175.9	169.3	6.64	26.507	
1,600.0	1,587.9	1,586.9	1,586.9	4.5	3.5	165.17	0.0	58.8	193.3	186.2	7.10	27.220	
1,700.0	1,686.3	1,685.3	1,685.3	4.9	3.7	166.27	1.0	58.8	210.1	202.5	7.58	27.735	
1,800.0	1,784.6	1,783.6	1,783.6	5.3	3.9	166.73	4.8	58.5	225.0	216.9	8.05	27.937	
1,900.0	1,883.0	1,882.0	1,882.0	5.7	4.2	166.68	11.4	58.0	237.9	229.4	8.54	27.861	
2,000.0	1,981.3	1,980.3	1,980.3	6.1	4.4	166.18	20.9	57.3	248.9	239.9	9.04	27.541	
2,100.0	2,079.7	2,078.7	2,078.7	6.4	4.6	165.29	33.2	56.4	258.0	248.4	9.55	27.008	
2,200.0	2,178.1	2,177.1	2,177.1	6.8	4.9	164.04	48.1	55.3	265.2	255.1	10.08	26.302	
2,300.0	2,276.4	2,275.4	2,275.4	7.2	5.2	162.77	63.4	54.1	271.9	261.3	10.62	25.600	
2,400.0	2,374.8	2,373.8	2,373.8	7.6	5.4	161.55	78.6	53.0	278.7	267.6	11.17	24.951	
2,500.0	2,473.1	2,472.1	2,472.1	8.0	5.7	160.40	93.9	51.9	285.7	274.0	11.73	24.345	
2,600.0	2,571.5	2,570.5	2,570.5	8.4	6.0	159.30	109.2	50.8	292.8	280.4	12.31	23.782	
2,700.0	2,669.9	2,668.9	2,668.9	8.8	6.3	158.26	124.4	49.6	299.9	287.0	12.90	23.258	
2,800.0	2,768.2	2,767.2	2,767.2	9.2	6.6	157.26	139.7	48.5	307.2	293.7	13.49	22.770	
2,900.0	2,866.6	2,865.6	2,865.6	9.6	6.9	156.31	154.9	47.4	314.6	300.5	14.10	22.315	
3,000.0	2,964.9	2,963.9	2,963.9	10.0	7.3	155.40	170.2	46.2	322.0	307.3	14.71	21.889	
3,100.0	3,063.3	3,062.3	3,062.3	10.4	7.6	154.53	185.4	45.1	329.5	314.2	15.33	21.492	
3,200.0	3,161.7	3,160.7	3,160.7	10.8	7.9	153.71	200.7	44.0	337.1	321.1	15.96	21.121	
3,300.0	3,260.0	3,259.0	3,259.0	11.3	8.2	152.92	215.9	42.9	344.7	328.1	16.60	20.773	
3,400.0	3,358.4	3,357.4	3,357.4	11.7	8.6	152.16	231.2	41.7	352.5	335.2	17.24	20.447	
3,500.0	3,456.8	3,455.8	3,455.8	12.1	8.9	151.43	246.4	40.6	360.2	342.3	17.89	20.142	
3,600.0	3,555.1	3,554.1	3,554.1	12.5	9.2	150.74	261.7	39.5	368.1	349.5	18.54	19.855	
3,700.0	3,653.5	3,652.5	3,652.5	12.9	9.6	150.08	277.0	38.3	375.9	356.7	19.20	19.585	
3,800.0	3,751.8	3,750.8	3,750.8	13.3	9.9	149.44	292.2	37.2	383.9	364.0	19.86	19.331	
3,900.0	3,850.2	3,849.2	3,849.2	13.7	10.2	148.83	307.5	36.1	391.8	371.3	20.52	19.092	
4,000.0	3,948.6	3,947.6	3,947.6	14.1	10.6	148.24	322.7	35.0	399.9	378.7	21.19	18.866	
4,100.0	4,046.9	4,045.9	4,045.9	14.5	10.9	147.68	338.0	33.8	407.9	386.1	21.87	18.653	
4,200.0	4,145.3	4,144.3	4,144.3	14.9	11.2	147.13	353.2	32.7	416.0	393.5	22.55	18.452	
4,300.0	4,243.6	4,242.6	4,242.6	15.3	11.6	146.61	368.5	31.6	424.1	400.9	23.23	18.262	
4,400.0	4,342.0	4,341.0	4,341.0	15.7	11.9	146.11	383.7	30.4	432.3	408.4	23.91	18.082	
4,500.0	4,440.4	4,439.4	4,439.4	16.1	12.3	145.63	399.0	29.3	440.5	415.9	24.59	17.911	
4,600.0	4,538.7	4,537.7	4,537.7	16.5	12.6	145.16	414.3	28.2	448.7	423.5	25.28	17.749	
4,700.0	4,637.1	4,636.1	4,636.1	16.9	13.0	144.71	429.5	27.1	457.0	431.0	25.97	17.595	
4,800.0	4,735.4	4,734.4	4,734.4	17.3	13.3	144.28	444.8	25.9	465.3	438.6	26.66	17.449	
4,900.0	4,833.8	4,832.8	4,832.8	17.7	13.7	143.86	460.0	24.8	473.6	446.2	27.36	17.310	

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 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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-443 - 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	4,932.2	4,996.8	4,961.2	18.1	14.0	143.46	475.3	23.7	481.9	453.9	28.05	17.177		
5,100.0	5,030.5	5,096.4	5,059.6	18.5	14.4	143.07	490.5	22.5	490.3	461.5	28.75	17.051		
5,200.0	5,128.9	5,196.0	5,158.0	18.9	14.7	142.69	505.8	21.4	498.6	469.2	29.45	16.931		
5,300.0	5,227.3	5,295.6	5,256.4	19.3	15.1	142.33	521.0	20.3	507.0	476.9	30.15	16.816		
5,400.0	5,325.6	5,395.2	5,354.9	19.7	15.4	141.98	536.3	19.2	515.5	484.6	30.85	16.706		
5,500.0	5,424.0	5,494.8	5,453.3	20.1	15.8	141.64	551.5	18.0	523.9	492.3	31.56	16.601		
5,560.5	5,483.5	5,555.0	5,512.8	20.4	16.0	141.44	560.8	17.4	529.0	497.0	31.98	16.540		
5,600.0	5,522.4	5,594.4	5,551.7	20.5	16.1	141.33	566.8	16.9	532.1	499.9	32.26	16.494		
5,700.0	5,621.3	5,694.1	5,650.2	20.8	16.5	140.88	582.1	15.8	538.2	505.2	32.94	16.340		
5,800.0	5,720.6	5,793.8	5,748.7	21.0	16.8	140.17	597.3	14.6	541.6	508.0	33.61	16.114		
5,900.0	5,820.3	5,893.4	5,847.1	21.2	17.2	139.20	612.6	13.5	542.5	508.2	34.28	15.822		
6,000.0	5,920.2	5,992.7	5,945.2	21.4	17.5	137.96	627.8	12.4	540.9	505.9	34.96	15.471		
6,079.9	6,000.0	6,071.7	6,023.3	21.5	17.8	102.69	639.9	11.5	538.0	502.5	35.50	15.153		
6,100.0	6,020.1	6,091.6	6,043.0	21.5	17.9	102.38	643.0	11.3	537.1	501.4	35.65	15.063		
6,200.0	6,120.1	6,190.4	6,140.6	21.7	18.2	100.82	658.1	10.2	532.8	496.5	36.38	14.646		
6,300.0	6,220.1	6,289.2	6,238.3	21.8	18.6	99.23	673.2	9.0	529.0	491.9	37.11	14.254		
6,400.0	6,320.1	6,388.1	6,335.9	21.9	18.9	97.62	688.4	7.9	525.6	487.8	37.84	13.889		
6,500.0	6,420.1	6,486.9	6,433.5	22.1	19.3	95.99	703.5	6.8	522.6	484.1	38.57	13.551		
6,600.0	6,520.1	6,585.7	6,531.2	22.2	19.6	94.34	718.6	5.7	520.1	480.8	39.29	13.238		
6,700.0	6,620.1	6,683.0	6,627.5	22.4	19.9	92.79	732.7	4.6	518.1	478.2	39.95	12.970		
6,800.0	6,720.1	6,780.4	6,724.2	22.5	20.2	91.58	743.7	3.8	516.8	476.3	40.49	12.764		
6,900.0	6,820.1	6,878.4	6,821.9	22.6	20.4	90.72	751.5	3.2	516.1	475.1	40.95	12.602		
7,000.0	6,920.1	6,976.8	6,920.3	22.8	20.5	90.23	755.9	2.9	515.7	474.4	41.34	12.476		
7,057.7	6,977.8	7,033.7	6,977.1	22.9	20.6	90.12	756.9	2.8	515.6	474.1	41.53	12.417		
7,096.8	7,016.9	7,072.5	7,015.9	22.9	20.7	-90.00	757.0	2.8	515.6	474.0	41.64	12.382		
7,100.0	7,020.1	7,075.7	7,019.1	22.9	20.7	-90.02	757.0	2.8	515.6	474.0	41.65	12.379		
7,150.0	7,069.9	7,125.5	7,068.9	22.9	20.8	-90.50	757.0	2.8	515.6	473.8	41.81	12.334		
7,200.0	7,119.3	7,175.1	7,118.5	22.9	20.8	-91.33	756.9	2.8	515.8	473.8	41.96	12.293		
7,250.0	7,168.1	7,225.5	7,168.8	22.9	20.9	-92.24	754.3	2.8	516.0	474.0	42.05	12.272		
7,300.0	7,216.1	7,276.4	7,219.4	22.8	20.9	-93.16	748.4	2.8	516.4	474.4	42.07	12.275		
7,350.0	7,263.1	7,328.0	7,270.1	22.7	20.9	-94.06	739.0	2.8	517.0	474.9	42.02	12.303		
7,400.0	7,308.8	7,380.1	7,320.6	22.6	20.8	-94.95	726.0	2.8	517.6	475.7	41.90	12.354		
7,450.0	7,353.1	7,432.9	7,370.6	22.5	20.7	-95.82	709.4	2.8	518.4	476.7	41.71	12.428		
7,500.0	7,395.8	7,486.3	7,420.0	22.4	20.6	-96.67	689.1	2.8	519.2	477.8	41.46	12.524		
7,550.0	7,436.8	7,540.3	7,468.4	22.2	20.5	-97.49	665.1	2.8	520.2	479.0	41.15	12.641		
7,600.0	7,475.7	7,594.9	7,515.5	22.0	20.3	-98.28	637.4	2.8	521.2	480.4	40.79	12.776		
7,650.0	7,512.6	7,650.2	7,560.9	21.8	20.1	-99.04	606.1	2.8	522.2	481.8	40.40	12.928		
7,700.0	7,547.1	7,706.0	7,604.5	21.7	19.9	-99.75	571.1	2.8	523.3	483.3	39.97	13.092		
7,750.0	7,579.2	7,762.5	7,645.8	21.5	19.8	-100.42	532.7	2.8	524.4	484.9	39.54	13.263		
7,800.0	7,608.7	7,819.5	7,684.6	21.3	19.6	-101.05	490.8	2.8	525.5	486.4	39.11	13.437		
7,850.0	7,635.5	7,877.0	7,720.4	21.1	19.4	-101.62	445.8	2.8	526.5	487.8	38.70	13.606		
7,900.0	7,659.6	7,935.1	7,753.0	20.9	19.2	-102.14	397.8	2.8	527.5	489.2	38.33	13.763		
7,950.0	7,680.6	7,993.6	7,782.0	20.7	19.1	-102.59	347.0	2.8	528.4	490.4	38.01	13.901		
8,000.0	7,698.7	8,052.5	7,807.3	20.6	19.0	-102.99	293.8	2.8	529.2	491.4	37.78	14.010		
8,050.0	7,713.7	8,111.8	7,828.5	20.4	18.9	-103.32	238.5	2.8	529.9	492.3	37.63	14.081		
8,100.0	7,725.6	8,171.4	7,845.4	20.3	18.9	-103.59	181.4	2.8	530.5	492.9	37.60	14.111		
8,150.0	7,734.2	8,231.2	7,857.9	20.1	19.0	-103.78	122.9	2.8	530.9	493.2	37.67	14.093		
8,200.0	7,739.6	8,291.2	7,865.7	20.0	19.1	-103.91	63.5	2.8	531.2	493.3	37.87	14.028		
8,250.0	7,741.7	8,351.2	7,868.9	19.9	19.3	-103.96	3.5	2.8	531.3	493.1	38.18	13.915		
8,261.7	7,741.8	8,364.7	7,869.0	19.9	19.3	-103.97	-9.9	2.8	531.3	493.1	38.27	13.882		
8,300.0	7,741.6	8,403.0	7,869.0	19.8	19.5	-103.99	-48.3	2.8	531.4	492.8	38.59	13.771		

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 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-323	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-443 - 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		
8,400.0	7,741.0	8,503.0	7,869.0	20.0	20.0	-104.04	-148.3		2.8	531.5	491.9	39.63	13.410	
8,500.0	7,740.5	8,603.0	7,869.0	20.8	20.7	-104.10	-248.3		2.8	531.6	490.6	41.00	12.968	
8,600.0	7,740.0	8,703.0	7,869.0	21.7	21.5	-104.15	-348.3		2.8	531.8	489.1	42.64	12.471	
8,700.0	7,739.5	8,803.0	7,869.0	22.7	22.5	-104.21	-448.3		2.8	531.9	487.3	44.53	11.943	
8,800.0	7,738.9	8,903.0	7,869.0	23.9	23.6	-104.26	-548.3		2.8	532.0	485.4	46.65	11.404	
8,900.0	7,738.4	9,003.0	7,869.0	25.1	24.8	-104.32	-648.3		2.8	532.1	483.2	48.96	10.869	
9,000.0	7,737.9	9,103.0	7,869.0	26.4	26.1	-104.37	-748.2		2.8	532.3	480.8	51.43	10.349	
9,100.0	7,737.4	9,203.0	7,869.0	27.8	27.4	-104.42	-848.2		2.8	532.4	478.4	54.05	9.851	
9,200.0	7,736.9	9,303.0	7,869.0	29.2	28.8	-104.48	-948.2		2.8	532.5	475.7	56.78	9.378	
9,300.0	7,736.3	9,402.9	7,869.0	30.7	30.3	-104.53	-1,048.2		2.8	532.7	473.0	59.63	8.933	
9,400.0	7,735.8	9,502.9	7,869.0	32.2	31.8	-104.59	-1,148.2		2.8	532.8	470.2	62.56	8.516	
9,500.0	7,735.3	9,602.9	7,869.0	33.7	33.4	-104.64	-1,248.2		2.8	532.9	467.3	65.57	8.127	
9,600.0	7,734.8	9,702.9	7,869.0	35.3	35.0	-104.70	-1,348.2		2.8	533.1	464.4	68.65	7.765	
9,700.0	7,734.2	9,802.9	7,869.0	36.9	36.6	-104.75	-1,448.2		2.8	533.2	461.4	71.79	7.427	
9,800.0	7,733.7	9,902.9	7,869.0	38.6	38.2	-104.81	-1,548.2		2.8	533.3	458.3	74.98	7.113	
9,900.0	7,733.2	10,002.9	7,869.0	40.3	39.9	-104.86	-1,648.2		2.8	533.5	455.2	78.21	6.820	
10,000.0	7,732.7	10,102.9	7,869.0	41.9	41.6	-104.91	-1,748.2		2.8	533.6	452.1	81.49	6.548	
10,100.0	7,732.1	10,202.9	7,869.0	43.6	43.3	-104.97	-1,848.2		2.8	533.7	448.9	84.79	6.294	
10,200.0	7,731.6	10,302.9	7,869.0	45.4	45.0	-105.02	-1,948.2		2.8	533.9	445.7	88.13	6.057	
10,300.0	7,731.1	10,402.9	7,869.0	47.1	46.8	-105.08	-2,048.2		2.8	534.0	442.5	91.50	5.836	
10,400.0	7,730.6	10,502.9	7,869.0	48.8	48.6	-105.13	-2,148.2		2.8	534.1	439.2	94.88	5.629	
10,500.0	7,730.0	10,602.9	7,869.0	50.6	50.3	-105.19	-2,248.2		2.8	534.3	436.0	98.29	5.435	
10,600.0	7,729.5	10,702.9	7,869.0	52.4	52.1	-105.24	-2,348.2		2.8	534.4	432.7	101.72	5.254	
10,700.0	7,729.0	10,802.9	7,869.0	54.1	53.9	-105.29	-2,448.2		2.8	534.5	429.4	105.16	5.083	
10,800.0	7,728.5	10,902.9	7,869.0	55.9	55.7	-105.35	-2,548.2		2.8	534.7	426.0	108.62	4.922	
10,900.0	7,728.0	11,002.9	7,869.0	57.7	57.5	-105.40	-2,648.2		2.8	534.8	422.7	112.10	4.771	
11,000.0	7,727.4	11,102.9	7,869.0	59.5	59.3	-105.46	-2,748.2		2.8	534.9	419.4	115.58	4.628	
11,100.0	7,726.9	11,202.9	7,869.0	61.3	61.1	-105.51	-2,848.2		2.8	535.1	416.0	119.08	4.494	
11,200.0	7,726.4	11,302.9	7,869.0	63.2	62.9	-105.56	-2,948.2		2.8	535.2	412.6	122.58	4.366	
11,300.0	7,725.9	11,402.9	7,869.0	65.0	64.8	-105.62	-3,048.2		2.8	535.4	409.3	126.10	4.246	
11,400.0	7,725.3	11,502.9	7,869.0	66.8	66.6	-105.67	-3,148.2		2.8	535.5	405.9	129.62	4.131	
11,500.0	7,724.8	11,602.9	7,869.0	68.6	68.4	-105.73	-3,248.2		2.8	535.6	402.5	133.15	4.023	
11,600.0	7,724.3	11,702.9	7,869.0	70.5	70.3	-105.78	-3,348.2		2.8	535.8	399.1	136.68	3.920	
11,700.0	7,723.8	11,802.9	7,869.0	72.3	72.1	-105.83	-3,448.2		2.8	535.9	395.7	140.22	3.822	
11,800.0	7,723.2	11,902.9	7,869.0	74.1	74.0	-105.89	-3,548.2		2.8	536.1	392.3	143.77	3.729	
11,900.0	7,722.7	12,002.9	7,869.0	76.0	75.8	-105.94	-3,648.2		2.8	536.2	388.9	147.32	3.640	
12,000.0	7,722.2	12,102.9	7,869.0	77.8	77.7	-106.00	-3,748.2		2.8	536.4	385.5	150.88	3.555	
12,036.7	7,722.0	12,139.6	7,869.0	78.5	78.4	-106.02	-3,784.9		2.8	536.4	384.2	152.18	3.525 SF	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-323	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 - Bredehoft 13-6 (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		
9,800.0	7,733.7	7,740.3	7,738.4	38.6	15.4	-89.85	-2,416.7	-222.4	915.8	862.2	53.56	17.099		
9,900.0	7,733.2	7,740.5	7,738.6	40.3	15.4	-89.89	-2,416.8	-222.4	821.6	766.3	55.23	14.875		
10,000.0	7,732.7	7,740.7	7,738.8	41.9	15.4	-89.94	-2,416.8	-222.4	728.9	672.0	56.93	12.804		
10,100.0	7,732.1	7,740.9	7,739.1	43.6	15.4	-89.98	-2,416.8	-222.4	638.4	579.8	58.64	10.887		
10,200.0	7,731.6	7,741.2	7,739.3	45.4	15.4	-90.03	-2,416.8	-222.4	551.2	490.9	60.37	9.131		
10,300.0	7,731.1	7,741.4	7,739.5	47.1	15.4	-90.07	-2,416.8	-222.4	469.2	407.1	62.12	7.554		
10,400.0	7,730.6	7,741.6	7,739.8	48.8	15.4	-90.12	-2,416.8	-222.4	395.5	331.7	63.87	6.193		
10,500.0	7,730.0	7,741.9	7,740.0	50.6	15.5	-90.16	-2,416.8	-222.4	335.8	270.1	65.64	5.115		
10,600.0	7,729.5	7,742.1	7,740.2	52.4	15.5	-90.21	-2,416.8	-222.4	298.4	231.0	67.42	4.426		
10,668.5	7,729.2	7,742.2	7,740.4	53.6	15.5	-90.24	-2,416.8	-222.4	290.4	221.8	68.65	4.231 CC, ES		
10,700.0	7,729.0	7,742.3	7,740.4	54.1	15.5	-90.25	-2,416.8	-222.4	292.1	222.9	69.21	4.221 SF		
10,800.0	7,728.5	7,742.5	7,740.7	55.9	15.5	-90.29	-2,416.8	-222.4	318.8	247.8	71.01	4.489		
10,900.0	7,728.0	7,742.8	7,740.9	57.7	15.5	-90.34	-2,416.8	-222.4	371.4	298.6	72.81	5.100		
11,000.0	7,727.4	7,743.0	7,741.1	59.5	15.5	-90.38	-2,416.8	-222.4	440.7	366.1	74.62	5.906		
11,100.0	7,726.9	7,743.2	7,741.3	61.3	15.5	-90.43	-2,416.8	-222.4	520.1	443.7	76.44	6.804		
11,200.0	7,726.4	7,743.4	7,741.6	63.2	15.5	-90.47	-2,416.8	-222.4	605.6	527.4	78.26	7.738		
11,300.0	7,725.9	7,743.7	7,741.8	65.0	15.5	-90.52	-2,416.8	-222.4	695.0	614.9	80.09	8.678		
11,400.0	7,725.3	7,743.9	7,742.0	66.8	15.5	-90.56	-2,416.8	-222.4	787.0	705.1	81.93	9.606		
11,500.0	7,724.8	7,744.1	7,742.2	68.6	15.5	-90.61	-2,416.8	-222.4	880.7	797.0	83.77	10.514		
11,600.0	7,724.3	7,744.3	7,742.5	70.5	15.5	-90.65	-2,416.8	-222.4	975.7	890.1	85.61	11.397		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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	-61.25	196.7	-358.6	409.1				
100.0	100.0	90.0	90.0	0.1	0.1	-61.30	196.6	-359.1	409.4	409.1	0.23	1,764.557	
200.0	200.0	190.8	190.8	0.3	0.4	-61.44	196.1	-360.1	410.0	409.3	0.71	578.191	
300.0	300.0	292.4	292.4	0.6	0.6	-61.57	195.4	-360.9	410.4	409.2	1.20	342.857	
400.0	400.0	392.2	392.2	0.8	0.9	-61.67	194.8	-361.4	410.5	408.9	1.68	244.142	
500.0	500.0	489.7	489.7	1.0	1.1	-27.76	194.5	-362.1	409.9	407.7	2.15	190.406	
600.0	599.9	588.4	588.4	1.2	1.4	-28.12	194.4	-363.2	407.4	404.7	2.62	155.233	
700.0	699.7	689.3	689.3	1.5	1.7	-28.76	193.9	-364.6	402.6	399.5	3.11	129.351	
800.0	799.3	790.5	790.4	1.7	1.9	-29.70	192.7	-366.0	395.3	391.7	3.61	109.620	
900.0	898.6	889.8	889.8	2.0	2.2	-30.92	191.2	-367.2	385.6	381.5	4.10	94.074	
1,000.0	997.5	988.7	988.6	2.3	2.4	-32.39	189.9	-368.3	373.8	369.2	4.60	81.227	
1,092.5	1,088.7	1,079.0	1,078.9	2.6	2.7	-34.01	189.0	-369.3	361.3	356.2	5.08	71.107	
1,100.0	1,096.1	1,086.3	1,086.2	2.6	2.7	-34.14	188.9	-369.4	360.2	355.1	5.12	70.347	
1,200.0	1,194.5	1,184.1	1,184.0	3.0	2.9	-35.98	188.2	-370.7	346.3	340.6	5.66	61.168	
1,300.0	1,292.8	1,282.9	1,282.8	3.3	3.2	-37.96	187.7	-371.9	332.8	326.6	6.22	53.494	
1,400.0	1,391.2	1,381.6	1,381.4	3.7	3.5	-40.11	187.0	-373.0	319.6	312.8	6.80	47.007	
1,500.0	1,489.5	1,480.5	1,480.4	4.1	3.7	-42.45	186.3	-374.0	306.7	299.3	7.39	41.481	
1,600.0	1,587.9	1,578.1	1,578.0	4.5	4.0	-44.94	185.7	-374.9	294.3	286.3	8.00	36.790	
1,700.0	1,686.3	1,676.1	1,676.0	4.9	4.2	-47.59	185.4	-376.0	282.9	274.3	8.62	32.813	
1,800.0	1,784.6	1,774.1	1,774.0	5.3	4.5	-50.41	185.4	-377.3	272.2	262.9	9.25	29.424	
1,900.0	1,883.0	1,872.0	1,871.8	5.7	4.7	-53.40	185.4	-378.7	262.4	252.5	9.89	26.531	
2,000.0	1,981.3	1,970.2	1,970.0	6.1	4.9	-56.59	185.7	-380.3	253.6	243.1	10.55	24.048	
2,100.0	2,079.7	2,068.4	2,068.2	6.4	5.2	-59.99	185.9	-382.1	245.8	234.6	11.22	21.907	
2,200.0	2,178.1	2,166.2	2,166.0	6.8	5.4	-63.58	186.1	-384.0	239.1	227.2	11.91	20.073	
2,300.0	2,276.4	2,264.4	2,264.2	7.2	5.7	-67.40	186.1	-386.2	233.7	221.1	12.62	18.518	
2,400.0	2,374.8	2,362.8	2,362.5	7.6	5.9	-71.39	186.1	-388.5	229.6	216.3	13.34	17.209	
2,500.0	2,473.1	2,461.4	2,461.1	8.0	6.2	-75.46	186.3	-390.9	226.7	212.6	14.06	16.125	
2,600.0	2,571.5	2,560.0	2,559.7	8.4	6.4	-79.58	186.6	-393.3	225.0	210.2	14.77	15.235	
2,700.0	2,669.9	2,658.9	2,658.5	8.8	6.7	-83.67	187.1	-395.9	224.4	208.9	15.45	14.519	
2,704.4	2,674.2	2,663.2	2,662.8	8.9	6.7	-83.85	187.2	-396.0	224.4	208.9	15.48	14.491	
2,800.0	2,768.2	2,757.4	2,757.0	9.2	6.9	-87.68	188.0	-398.5	224.9	208.8	16.12	13.949	
2,900.0	2,866.6	2,856.1	2,855.6	9.6	7.1	-91.66	188.7	-401.2	226.7	209.9	16.77	13.514	
3,000.0	2,964.9	2,954.8	2,954.3	10.0	7.4	-95.63	189.3	-403.7	229.5	212.1	17.41	13.184	
3,100.0	3,063.3	3,053.4	3,052.9	10.4	7.6	-99.67	189.3	-405.7	233.5	215.5	18.02	12.956	
3,200.0	3,161.7	3,152.3	3,151.8	10.8	7.9	-103.75	188.8	-407.1	238.6	220.0	18.61	12.821	
3,300.0	3,260.0	3,251.4	3,250.9	11.3	8.2	-107.73	188.3	-408.1	244.6	225.5	19.17	12.763	
3,400.0	3,358.4	3,350.4	3,349.9	11.7	8.4	-111.55	187.9	-408.8	251.5	231.8	19.69	12.773	
3,500.0	3,456.8	3,449.3	3,448.8	12.1	8.7	-115.19	187.6	-409.2	259.3	239.1	20.19	12.839	
3,600.0	3,555.1	3,548.8	3,548.2	12.5	8.9	-118.61	187.6	-409.6	267.8	247.1	20.65	12.969	
3,700.0	3,653.5	3,648.6	3,648.1	12.9	9.1	-121.80	188.1	-409.9	276.6	255.6	21.02	13.162	
3,800.0	3,751.8	3,747.3	3,746.8	13.3	9.2	-124.77	188.8	-410.0	285.9	264.6	21.32	13.415	
3,900.0	3,850.2	3,844.6	3,844.0	13.7	9.3	-127.54	189.4	-410.0	296.1	274.5	21.63	13.694	
4,000.0	3,948.6	3,941.8	3,941.2	14.1	9.5	-130.13	189.4	-410.1	307.6	285.6	22.00	13.979	
4,100.0	4,046.9	4,040.4	4,039.9	14.5	9.8	-132.55	189.4	-410.3	319.6	297.2	22.42	14.256	
4,200.0	4,145.3	4,139.6	4,139.0	14.9	10.0	-134.69	189.7	-411.1	332.1	309.3	22.84	14.538	
4,300.0	4,243.6	4,238.8	4,238.3	15.3	10.2	-136.63	190.2	-412.2	344.7	321.5	23.26	14.822	
4,400.0	4,342.0	4,337.5	4,337.0	15.7	10.5	-138.39	190.9	-413.4	357.6	334.0	23.67	15.107	
4,500.0	4,440.4	4,436.1	4,435.5	16.1	10.7	-139.99	191.7	-414.9	370.8	346.7	24.10	15.387	
4,600.0	4,538.7	4,534.6	4,534.0	16.5	10.9	-141.41	192.4	-416.8	384.3	359.7	24.53	15.663	
4,700.0	4,637.1	4,634.0	4,633.4	16.9	11.2	-142.70	193.2	-419.1	397.9	372.9	24.98	15.926	
4,800.0	4,735.4	4,733.4	4,732.7	17.3	11.4	-143.87	194.3	-421.6	411.5	386.0	25.43	16.179	

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 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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		
4,900.0	4,833.8	4,832.6	4,832.0	17.7	11.7	-144.99	195.5	-423.9	425.1	399.2	25.88	16.425		
5,000.0	4,932.2	4,931.2	4,930.5	18.1	11.9	-146.03	196.7	-426.2	438.8	412.5	26.33	16.668		
5,100.0	5,030.5	5,029.3	5,028.5	18.5	12.2	-147.01	197.8	-428.5	452.7	426.0	26.78	16.908		
5,200.0	5,128.9	5,126.7	5,125.9	18.9	12.4	-147.91	198.7	-430.8	467.0	439.8	27.24	17.147		
5,300.0	5,227.3	5,224.1	5,223.3	19.3	12.7	-148.72	199.2	-433.4	481.7	454.0	27.71	17.386		
5,400.0	5,325.6	5,321.4	5,320.5	19.7	12.9	-149.51	199.6	-435.8	496.7	468.5	28.18	17.626		
5,500.0	5,424.0	5,417.3	5,416.4	20.1	13.2	-150.34	199.6	-437.3	512.3	483.6	28.64	17.884		
5,560.5	5,483.5	5,476.1	5,475.2	20.4	13.3	-150.86	199.5	-437.8	521.9	493.0	28.92	18.048		
5,600.0	5,522.4	5,514.7	5,513.8	20.5	13.4	-151.24	199.3	-438.1	528.0	498.9	29.10	18.145		
5,700.0	5,621.3	5,613.7	5,612.9	20.8	13.7	-152.07	199.0	-438.6	541.5	512.0	29.51	18.349		
5,800.0	5,720.6	5,713.4	5,712.6	21.0	13.9	-152.70	198.8	-438.9	551.9	522.0	29.90	18.458		
5,900.0	5,820.3	5,811.2	5,810.3	21.2	14.1	-153.10	198.4	-439.2	559.4	529.2	30.25	18.493		
6,000.0	5,920.2	5,912.9	5,912.1	21.4	14.3	-153.31	198.0	-439.6	563.8	533.2	30.60	18.426		
6,079.9	6,000.0	5,993.3	5,992.5	21.5	14.6	-172.59	197.8	-440.0	564.9	534.0	30.88	18.294		
6,100.0	6,020.1	6,013.5	6,012.6	21.5	14.6	-172.60	197.8	-440.1	564.9	534.0	30.97	18.244		
6,200.0	6,120.1	6,113.7	6,112.8	21.7	14.9	-172.66	197.6	-440.6	565.0	533.6	31.40	17.994		
6,300.0	6,220.1	6,215.8	6,214.9	21.8	15.0	-172.68	197.7	-440.8	564.9	533.1	31.75	17.791		
6,400.0	6,320.1	6,316.2	6,315.3	21.9	15.1	-172.66	198.1	-440.7	564.5	532.5	32.00	17.640		
6,500.0	6,420.1	6,416.2	6,415.3	22.1	15.1	-172.63	198.5	-440.4	564.2	531.9	32.23	17.507		
6,600.0	6,520.1	6,517.5	6,516.6	22.2	15.2	-172.59	199.0	-440.1	563.7	531.2	32.46	17.365		
6,700.0	6,620.1	6,618.0	6,617.1	22.4	15.3	-172.55	199.8	-439.8	563.0	530.2	32.71	17.210		
6,800.0	6,720.1	6,715.4	6,714.5	22.5	15.3	-172.47	200.4	-439.1	562.5	529.6	32.93	17.084		
6,900.0	6,820.1	6,814.8	6,813.9	22.6	15.3	-172.37	200.7	-438.1	562.3	529.2	33.11	16.983		
7,000.0	6,920.1	6,914.8	6,913.9	22.8	15.3	-172.27	200.9	-437.2	562.2	528.9	33.30	16.883		
7,057.7	6,977.8	6,973.3	6,972.4	22.9	15.3	-172.20	201.1	-436.5	562.1	528.7	33.41	16.822		
7,100.0	7,020.1	7,016.3	7,015.4	22.9	15.4	-7.88	201.3	-436.0	560.8	527.5	33.33	16.826		
7,150.0	7,069.9	7,066.9	7,066.0	22.9	15.4	-8.06	201.7	-435.4	556.2	523.1	33.08	16.814		
7,200.0	7,119.3	7,116.3	7,115.4	22.9	15.4	-8.32	202.0	-434.9	548.3	515.6	32.68	16.780		
7,250.0	7,168.1	7,163.7	7,162.8	22.9	15.4	-8.68	202.3	-434.3	537.4	505.2	32.12	16.728		
7,300.0	7,216.1	7,210.7	7,209.8	22.8	15.4	-9.15	202.5	-433.7	523.4	492.0	31.42	16.657		
7,350.0	7,263.1	7,257.6	7,256.7	22.7	15.4	-9.76	202.7	-433.1	506.4	475.8	30.57	16.563		
7,400.0	7,308.8	7,303.3	7,302.4	22.6	15.5	-10.53	202.8	-432.5	486.4	456.8	29.59	16.438		
7,450.0	7,353.1	7,348.1	7,347.1	22.5	15.5	-11.52	203.0	-431.9	463.6	435.1	28.49	16.273		
7,500.0	7,395.8	7,391.1	7,390.2	22.4	15.5	-12.79	203.2	-431.2	437.9	410.6	27.28	16.054		
7,550.0	7,436.8	7,431.8	7,430.9	22.2	15.5	-14.41	203.5	-430.5	409.6	383.6	25.99	15.759		
7,600.0	7,475.7	7,470.4	7,469.5	22.0	15.5	-16.50	203.7	-429.9	378.9	354.2	24.69	15.349		
7,650.0	7,512.6	7,507.0	7,506.0	21.8	15.5	-19.23	203.9	-429.3	346.0	322.5	23.46	14.749		
7,700.0	7,547.1	7,541.3	7,540.4	21.7	15.5	-22.86	204.1	-428.7	311.0	288.5	22.48	13.835		
7,750.0	7,579.2	7,573.2	7,572.2	21.5	15.6	-27.75	204.3	-428.1	274.3	252.2	22.06	12.435		
7,800.0	7,608.7	7,602.5	7,601.5	21.3	15.6	-34.38	204.5	-427.7	236.3	213.6	22.64	10.436		
7,850.0	7,635.5	7,629.0	7,628.1	21.1	15.6	-43.24	204.6	-427.2	197.5	172.9	24.61	8.026		
7,900.0	7,659.6	7,652.8	7,651.8	20.9	15.6	-54.56	204.7	-426.8	159.3	131.4	27.84	5.720		
7,950.0	7,680.6	7,673.6	7,672.6	20.7	15.6	-67.54	204.8	-426.5	123.7	92.4	31.30	3.953		
8,000.0	7,698.7	7,691.4	7,690.5	20.6	15.6	-80.13	204.9	-426.2	96.3	62.6	33.67	2.859		
8,043.5	7,712.0	7,704.5	7,703.5	20.4	15.6	-89.00	205.0	-426.0	86.8	52.3	34.53	2.515 CC, ES, SF		
8,050.0	7,713.7	7,706.2	7,705.2	20.4	15.6	-90.09	205.0	-425.9	87.1	52.5	34.59	2.517		
8,100.0	7,725.6	7,717.9	7,716.9	20.3	15.6	-96.24	205.0	-425.7	102.7	68.0	34.69	2.960		
8,150.0	7,734.2	7,726.3	7,725.4	20.1	15.6	-98.32	205.1	-425.6	135.5	100.8	34.67	3.908		
8,200.0	7,739.6	7,731.6	7,730.6	20.0	15.6	-96.26	205.1	-425.5	176.5	141.7	34.84	5.067		
8,250.0	7,741.7	7,733.5	7,732.6	19.9	15.6	-89.91	205.1	-425.5	221.3	186.4	34.94	6.335		
8,261.7	7,741.8	7,733.5	7,732.5	19.9	15.6	-87.80	205.1	-425.5	232.1	197.2	34.87	6.656		

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 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-323	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	
8,300.0	7,741.6	7,733.2	7,732.2	19.8	15.6	-87.57	205.1	-425.5	268.0	233.0	35.01	7.655	
8,400.0	7,741.0	7,732.3	7,731.3	20.0	15.6	-86.98	205.1	-425.5	364.0	328.5	35.48	10.260	
8,500.0	7,740.5	7,731.4	7,730.4	20.8	15.6	-86.38	205.1	-425.5	461.7	425.6	36.11	12.787	
8,600.0	7,740.0	7,730.5	7,729.5	21.7	15.6	-85.78	205.1	-425.5	560.2	523.3	36.88	15.190	
8,700.0	7,739.5	7,729.5	7,728.5	22.7	15.6	-85.18	205.1	-425.5	659.2	621.4	37.78	17.446	
8,800.0	7,738.9	7,728.6	7,727.6	23.9	15.6	-84.58	205.1	-425.6	758.4	719.6	38.80	19.547	
8,900.0	7,738.4	7,727.7	7,726.7	25.1	15.6	-83.97	205.1	-425.6	857.8	817.9	39.91	21.494	
9,000.0	7,737.9	7,726.7	7,725.8	26.4	15.6	-83.37	205.1	-425.6	957.3	916.2	41.10	23.291	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-323	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 12-6 (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		
8,400.0	7,741.0	7,726.1	7,717.6	20.0	16.4	-90.75	-1,136.1	-377.3	997.1	960.7	36.41	27.386		
8,500.0	7,740.5	7,725.7	7,717.2	20.8	16.4	-90.56	-1,136.1	-377.3	898.1	861.0	37.08	24.221		
8,600.0	7,740.0	7,725.2	7,716.8	21.7	16.4	-90.38	-1,136.1	-377.3	799.4	761.5	37.90	21.093		
8,700.0	7,739.5	7,724.8	7,716.3	22.7	16.4	-90.19	-1,136.1	-377.4	701.1	662.2	38.85	18.044		
8,800.0	7,738.9	7,724.3	7,715.9	23.9	16.4	-90.01	-1,136.1	-377.4	603.3	563.3	39.92	15.111		
8,900.0	7,738.4	7,723.9	7,715.5	25.1	16.4	-89.82	-1,136.1	-377.4	506.3	465.2	41.09	12.322		
9,000.0	7,737.9	7,723.5	7,715.0	26.4	16.4	-89.64	-1,136.1	-377.4	410.8	368.5	42.35	9.701		
9,100.0	7,737.4	7,723.1	7,714.6	27.8	16.4	-89.46	-1,136.1	-377.4	318.1	274.4	43.68	7.283		
9,200.0	7,736.9	7,722.6	7,714.2	29.2	16.4	-89.28	-1,136.1	-377.4	231.6	186.5	45.08	5.138		
9,300.0	7,736.3	7,722.2	7,713.7	30.7	16.4	-89.10	-1,136.1	-377.4	161.4	114.9	46.53	3.469		
9,387.9	7,735.9	7,721.8	7,713.4	32.0	16.4	-88.94	-1,136.1	-377.4	135.4	87.6	47.85	2.830 CC, ES, SF		
9,400.0	7,735.8	7,721.8	7,713.3	32.2	16.4	-88.92	-1,136.1	-377.4	135.9	87.9	48.03	2.831		
9,500.0	7,735.3	7,721.4	7,712.9	33.7	16.4	-88.74	-1,136.1	-377.4	175.8	126.2	49.57	3.547		
9,600.0	7,734.8	7,720.9	7,712.5	35.3	16.4	-88.56	-1,136.1	-377.4	251.7	200.5	51.15	4.920		
9,700.0	7,734.2	7,720.5	7,712.1	36.9	16.4	-88.38	-1,136.1	-377.4	340.2	287.5	52.75	6.449		
9,800.0	7,733.7	7,720.1	7,711.6	38.6	16.4	-88.21	-1,136.1	-377.4	433.8	379.4	54.39	7.976		
9,900.0	7,733.2	7,719.7	7,711.2	40.3	16.4	-88.03	-1,136.1	-377.4	529.7	473.7	56.05	9.451		
10,000.0	7,732.7	7,719.3	7,710.8	41.9	16.4	-87.85	-1,136.1	-377.5	626.9	569.2	57.73	10.860		
10,100.0	7,732.1	7,718.8	7,710.4	43.6	16.4	-87.68	-1,136.1	-377.5	724.9	665.5	59.42	12.199		
10,200.0	7,731.6	7,718.4	7,710.0	45.4	16.4	-87.51	-1,136.1	-377.5	823.3	762.2	61.13	13.468		
10,300.0	7,731.1	7,718.0	7,709.6	47.1	16.4	-87.33	-1,136.1	-377.5	922.1	859.3	62.86	14.669		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-323
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-323	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 @ 5074.0ft (RKB - 13')

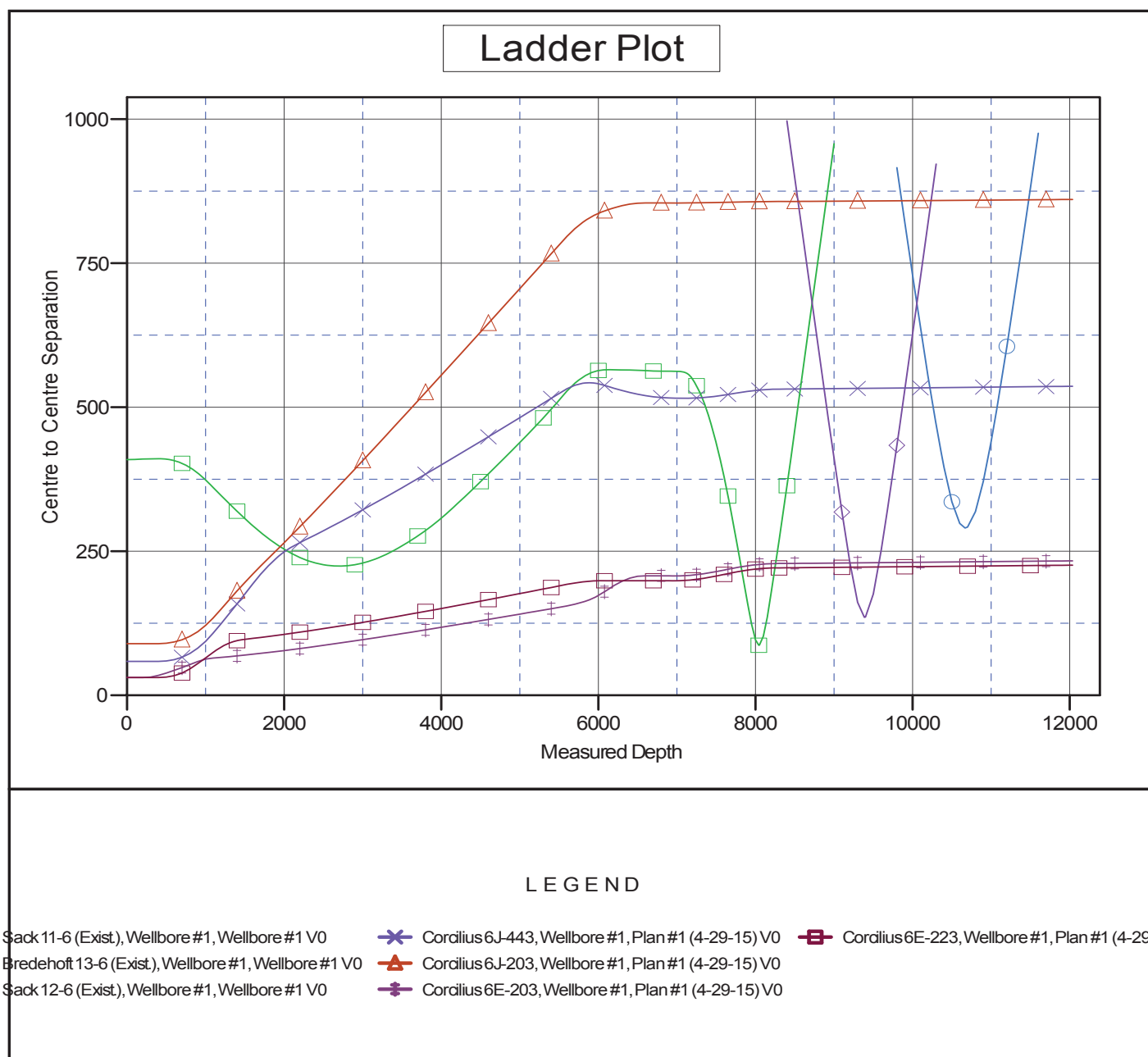
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Corcilus 6E-323

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.36°



Coordinates are relative to: Corcilius 6E-323
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.36°

