

PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Corcilus 6J-443**

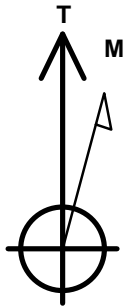
Surface Location: Corcilus 1S67W6J Pad Sec.6-T1S-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 5060.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1242662.21	3157651.32	39.998120	-104.937280	
RKB - 13' WELL @ 5073.0ft (RKB - 13')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E/W Hardline (6J-443)	1.0	-1895.9	-56.0	Rectangle (Sides: L3778.0 W100.0)
SHL 807'FNL & 855'FWL	1.0	0.0	0.0	Point
BHL 500'FSL & 774'FWL	7869.0	-3784.9	-56.0	Point



Azimuths to True North
Magnetic North: 8.40°

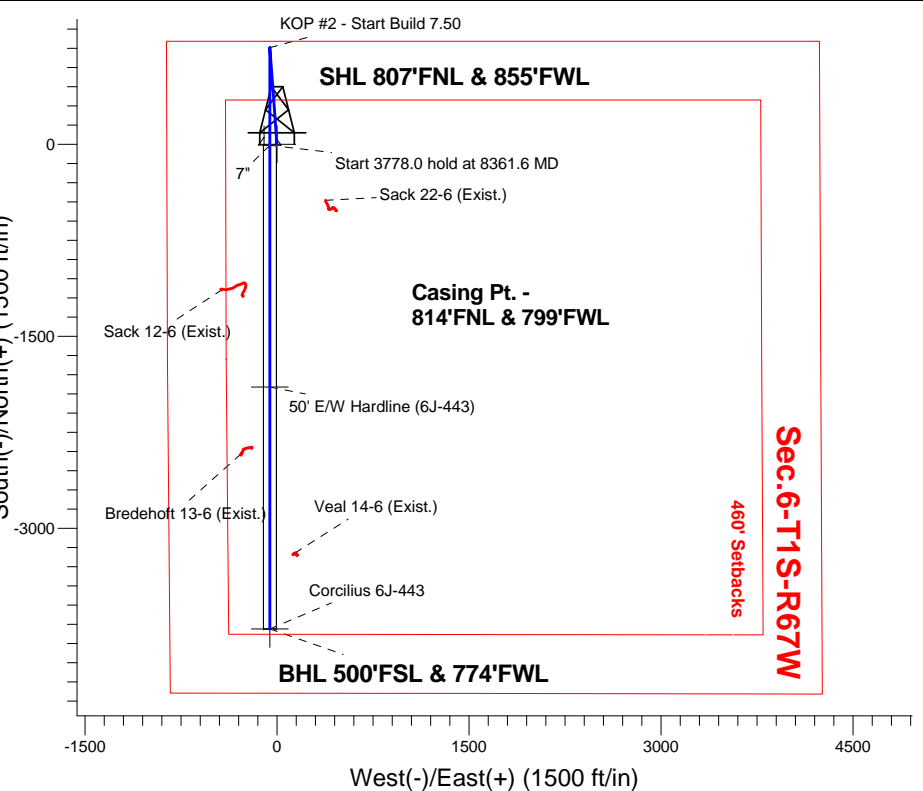
Magnetic Field
Strength: 52492.4snT
Dip Angle: 66.56°
Date: 4/29/2015
Model: IGRF2010

ANNOTATIONS

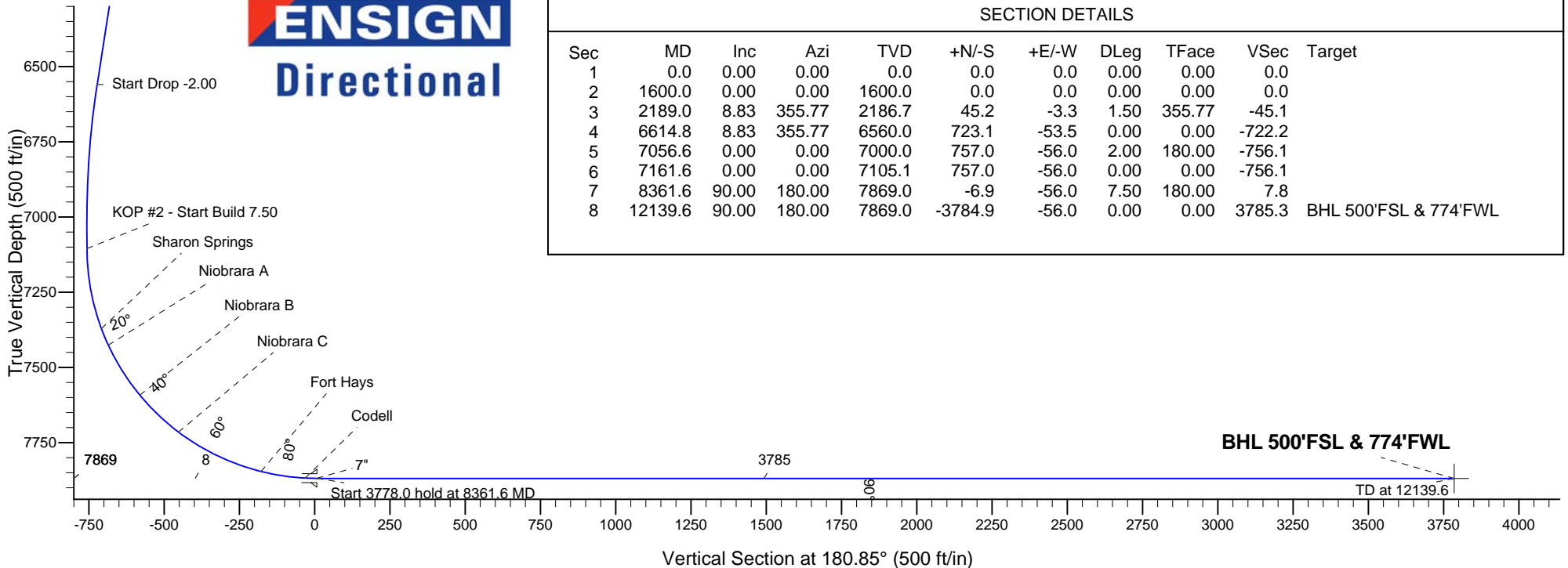
TVD	MD	Annotation
1600.0	1600.0	KOP - Start Build 1.50
6560.0	6614.8	Start Drop -2.00
7105.0	7161.6	KOP #2 - Start Build 7.50
7869.0	8361.6	Start 3778.0 hold at 8361.6 MD
7869.0	12139.6	TD at 12139.6

Corcilus 1S67W6J Pad Sec.6-T1S-R67W
Corcilus 6J-443
Plan #1 (4-29-15)
15:44, 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	1600.0	0.00	0.00	1600.0	0.0	0.0	0.00	0.00	0.0	
3	2189.0	8.83	355.77	2186.7	45.2	-3.3	1.50	355.77	-45.1	
4	6614.8	8.83	355.77	6560.0	723.1	-53.5	0.00	0.00	-722.2	
5	7056.6	0.00	0.00	7000.0	757.0	-56.0	2.00	180.00	-756.1	
6	7161.6	0.00	0.00	7105.1	757.0	-56.0	0.00	0.00	-756.1	
7	8361.6	90.00	180.00	7869.0	-6.9	-56.0	7.50	180.00	7.8	
8	12139.6	90.00	180.00	7869.0	-3784.9	-56.0	0.00	0.00	3785.3	BHL 500'FSL & 774'FWL



Directional

PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.6-T1S-R67W

Corcilus 1S67W6J Pad Sec.6-T1S-R67W

Corcilus 6J-443

Wellbore #1

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

Standard Planning Report

23 September, 2015

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6J-443
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6J-443	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:	-104.937200
		Grid Convergence:	0.36 °

Well	Corcilus 6J-443		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	89.7 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	180.85

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	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,189.0	8.83	355.77	2,186.7	45.2	-3.3	1.50	1.50	0.00	355.77	
6,614.8	8.83	355.77	6,560.0	723.1	-53.5	0.00	0.00	0.00	0.00	
7,056.6	0.00	0.00	7,000.0	757.0	-56.0	2.00	-2.00	0.00	180.00	
7,161.6	0.00	0.00	7,105.1	757.0	-56.0	0.00	0.00	0.00	0.00	
8,361.6	90.00	180.00	7,869.0	-6.9	-56.0	7.50	7.50	0.00	180.00	
12,139.6	90.00	180.00	7,869.0	-3,784.9	-56.0	0.00	0.00	0.00	0.00	BHL 500'FSL & 774'F

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6J-443
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6J-443	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 807'FNL & 855'FWL - 50' E/W Hardline (6J-443)									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 1.50									
1,700.0	1.50	355.77	1,700.0	1.3	-0.1	-1.3	1.50	1.50	0.00
1,800.0	3.00	355.77	1,799.9	5.2	-0.4	-5.2	1.50	1.50	0.00
1,900.0	4.50	355.77	1,899.7	11.7	-0.9	-11.7	1.50	1.50	0.00
2,000.0	6.00	355.77	1,999.3	20.9	-1.5	-20.8	1.50	1.50	0.00
2,100.0	7.50	355.77	2,098.6	32.6	-2.4	-32.5	1.50	1.50	0.00
2,189.0	8.83	355.77	2,186.7	45.2	-3.3	-45.1	1.50	1.50	0.00
2,200.0	8.83	355.77	2,197.5	46.9	-3.5	-46.8	0.00	0.00	0.00
2,300.0	8.83	355.77	2,296.4	62.2	-4.6	-62.1	0.00	0.00	0.00
2,400.0	8.83	355.77	2,395.2	77.5	-5.7	-77.4	0.00	0.00	0.00
2,500.0	8.83	355.77	2,494.0	92.8	-6.9	-92.7	0.00	0.00	0.00
2,600.0	8.83	355.77	2,592.8	108.2	-8.0	-108.0	0.00	0.00	0.00
2,700.0	8.83	355.77	2,691.6	123.5	-9.1	-123.3	0.00	0.00	0.00
2,800.0	8.83	355.77	2,790.4	138.8	-10.3	-138.6	0.00	0.00	0.00
2,900.0	8.83	355.77	2,889.2	154.1	-11.4	-153.9	0.00	0.00	0.00
3,000.0	8.83	355.77	2,988.0	169.4	-12.5	-169.2	0.00	0.00	0.00
3,100.0	8.83	355.77	3,086.9	184.7	-13.7	-184.5	0.00	0.00	0.00
3,200.0	8.83	355.77	3,185.7	200.1	-14.8	-199.8	0.00	0.00	0.00
3,300.0	8.83	355.77	3,284.5	215.4	-15.9	-215.1	0.00	0.00	0.00
3,400.0	8.83	355.77	3,383.3	230.7	-17.1	-230.4	0.00	0.00	0.00
3,500.0	8.83	355.77	3,482.1	246.0	-18.2	-245.7	0.00	0.00	0.00
3,600.0	8.83	355.77	3,580.9	261.3	-19.3	-261.0	0.00	0.00	0.00
3,700.0	8.83	355.77	3,679.7	276.6	-20.5	-276.3	0.00	0.00	0.00
3,800.0	8.83	355.77	3,778.6	292.0	-21.6	-291.6	0.00	0.00	0.00
3,900.0	8.83	355.77	3,877.4	307.3	-22.7	-306.9	0.00	0.00	0.00
4,000.0	8.83	355.77	3,976.2	322.6	-23.9	-322.2	0.00	0.00	0.00
4,100.0	8.83	355.77	4,075.0	337.9	-25.0	-337.5	0.00	0.00	0.00
4,200.0	8.83	355.77	4,173.8	353.2	-26.1	-352.8	0.00	0.00	0.00
4,300.0	8.83	355.77	4,272.6	368.5	-27.3	-368.1	0.00	0.00	0.00
4,400.0	8.83	355.77	4,371.4	383.9	-28.4	-383.4	0.00	0.00	0.00
4,458.3	8.83	355.77	4,429.0	392.8	-29.1	-392.3	0.00	0.00	0.00
Parkman									
4,500.0	8.83	355.77	4,470.2	399.2	-29.5	-398.7	0.00	0.00	0.00
4,600.0	8.83	355.77	4,569.1	414.5	-30.7	-414.0	0.00	0.00	0.00

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Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6J-443	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	8.83	355.77	4,667.9	429.8	-31.8	-429.3	0.00	0.00	0.00
4,800.0	8.83	355.77	4,766.7	445.1	-32.9	-444.6	0.00	0.00	0.00
4,832.7	8.83	355.77	4,799.0	450.1	-33.3	-449.6	0.00	0.00	0.00
Sussex									
4,900.0	8.83	355.77	4,865.5	460.4	-34.1	-459.9	0.00	0.00	0.00
5,000.0	8.83	355.77	4,964.3	475.8	-35.2	-475.2	0.00	0.00	0.00
5,100.0	8.83	355.77	5,063.1	491.1	-36.3	-490.5	0.00	0.00	0.00
5,200.0	8.83	355.77	5,161.9	506.4	-37.5	-505.8	0.00	0.00	0.00
5,300.0	8.83	355.77	5,260.8	521.7	-38.6	-521.1	0.00	0.00	0.00
5,400.0	8.83	355.77	5,359.6	537.0	-39.7	-536.4	0.00	0.00	0.00
5,419.7	8.83	355.77	5,379.0	540.0	-39.9	-539.4	0.00	0.00	0.00
Shannon									
5,500.0	8.83	355.77	5,458.4	552.3	-40.9	-551.7	0.00	0.00	0.00
5,600.0	8.83	355.77	5,557.2	567.7	-42.0	-567.0	0.00	0.00	0.00
5,700.0	8.83	355.77	5,656.0	583.0	-43.1	-582.3	0.00	0.00	0.00
5,800.0	8.83	355.77	5,754.8	598.3	-44.3	-597.6	0.00	0.00	0.00
5,900.0	8.83	355.77	5,853.6	613.6	-45.4	-612.9	0.00	0.00	0.00
6,000.0	8.83	355.77	5,952.5	628.9	-46.5	-628.2	0.00	0.00	0.00
6,100.0	8.83	355.77	6,051.3	644.2	-47.7	-643.5	0.00	0.00	0.00
6,200.0	8.83	355.77	6,150.1	659.6	-48.8	-658.8	0.00	0.00	0.00
6,300.0	8.83	355.77	6,248.9	674.9	-49.9	-674.1	0.00	0.00	0.00
6,400.0	8.83	355.77	6,347.7	690.2	-51.1	-689.4	0.00	0.00	0.00
6,500.0	8.83	355.77	6,446.5	705.5	-52.2	-704.7	0.00	0.00	0.00
6,600.0	8.83	355.77	6,545.3	720.8	-53.3	-720.0	0.00	0.00	0.00
6,614.8	8.83	355.77	6,560.0	723.1	-53.5	-722.2	0.00	0.00	0.00
Start Drop -2.00									
6,700.0	7.13	355.77	6,644.3	734.9	-54.4	-734.0	2.00	-2.00	0.00
6,800.0	5.13	355.77	6,743.8	745.5	-55.2	-744.6	2.00	-2.00	0.00
6,900.0	3.13	355.77	6,843.5	752.7	-55.7	-751.8	2.00	-2.00	0.00
7,000.0	1.13	355.77	6,943.4	756.4	-56.0	-755.5	2.00	-2.00	0.00
7,056.6	0.00	0.00	7,000.0	757.0	-56.0	-756.1	2.00	-2.00	0.00
7,100.0	0.00	0.00	7,043.4	757.0	-56.0	-756.1	0.00	0.00	0.00
7,161.6	0.00	0.00	7,105.0	757.0	-56.0	-756.1	0.00	0.00	0.00
KOP #2 - Start Build 7.50									
7,200.0	2.88	180.00	7,143.4	756.0	-56.0	-755.1	7.49	7.49	0.00
7,300.0	10.38	180.00	7,242.7	744.5	-56.0	-743.6	7.50	7.50	0.00
7,400.0	17.88	180.00	7,339.6	720.1	-56.0	-719.2	7.50	7.50	0.00
7,433.3	20.37	180.00	7,371.0	709.2	-56.0	-708.3	7.50	7.50	0.00
Sharon Springs									
7,492.9	24.84	180.00	7,426.0	686.3	-56.0	-685.4	7.50	7.50	0.00
Niobrara A									
7,500.0	25.38	180.00	7,432.5	683.3	-56.0	-682.4	7.50	7.50	0.00
7,600.0	32.88	180.00	7,519.7	634.6	-56.0	-633.8	7.50	7.50	0.00
7,689.6	39.60	180.00	7,592.0	581.7	-56.0	-580.8	7.50	7.50	0.00
Niobrara B									
7,700.0	40.38	180.00	7,599.9	575.0	-56.0	-574.1	7.50	7.50	0.00
7,800.0	47.88	180.00	7,671.7	505.5	-56.0	-504.6	7.50	7.50	0.00
7,868.0	52.98	180.00	7,715.0	453.0	-56.0	-452.2	7.50	7.50	0.00
Niobrara C									
7,900.0	55.38	180.00	7,733.7	427.1	-56.0	-426.2	7.50	7.50	0.00
8,000.0	62.88	180.00	7,785.0	341.3	-56.0	-340.5	7.50	7.50	0.00
8,100.0	70.38	180.00	7,824.6	249.6	-56.0	-248.8	7.50	7.50	0.00

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Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6J-443	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)
8,173.7	75.90	180.00	7,846.0	179.1	-56.0	-178.3	7.50	7.50	0.00
Fort Hays									
8,200.0	77.88	180.00	7,852.0	153.5	-56.0	-152.7	7.50	7.50	0.00
8,300.0	85.38	180.00	7,866.5	54.6	-56.0	-53.8	7.50	7.50	0.00
8,322.6	87.07	180.00	7,868.0	32.1	-56.0	-31.3	7.50	7.50	0.00
Codell									
8,361.6	90.00	180.00	7,869.0	-6.9	-56.0	7.7	7.50	7.50	0.00
Start 3778.0 hold at 8361.6 MD - 7"									
8,400.0	90.00	180.00	7,869.0	-45.3	-56.0	46.1	0.01	0.01	0.00
8,500.0	90.00	180.00	7,869.0	-145.3	-56.0	146.1	0.00	0.00	0.00
8,600.0	90.00	180.00	7,869.0	-245.3	-56.0	246.1	0.00	0.00	0.00
8,700.0	90.00	180.00	7,869.0	-345.3	-56.0	346.1	0.00	0.00	0.00
8,800.0	90.00	180.00	7,869.0	-445.3	-56.0	446.1	0.00	0.00	0.00
8,900.0	90.00	180.00	7,869.0	-545.3	-56.0	546.1	0.00	0.00	0.00
9,000.0	90.00	180.00	7,869.0	-645.3	-56.0	646.1	0.00	0.00	0.00
9,100.0	90.00	180.00	7,869.0	-745.3	-56.0	746.0	0.00	0.00	0.00
9,200.0	90.00	180.00	7,869.0	-845.3	-56.0	846.0	0.00	0.00	0.00
9,300.0	90.00	180.00	7,869.0	-945.3	-56.0	946.0	0.00	0.00	0.00
9,400.0	90.00	180.00	7,869.0	-1,045.3	-56.0	1,046.0	0.00	0.00	0.00
9,500.0	90.00	180.00	7,869.0	-1,145.3	-56.0	1,146.0	0.00	0.00	0.00
9,600.0	90.00	180.00	7,869.0	-1,245.3	-56.0	1,246.0	0.00	0.00	0.00
9,700.0	90.00	180.00	7,869.0	-1,345.3	-56.0	1,346.0	0.00	0.00	0.00
9,800.0	90.00	180.00	7,869.0	-1,445.3	-56.0	1,446.0	0.00	0.00	0.00
9,900.0	90.00	180.00	7,869.0	-1,545.3	-56.0	1,546.0	0.00	0.00	0.00
10,000.0	90.00	180.00	7,869.0	-1,645.3	-56.0	1,645.9	0.00	0.00	0.00
10,100.0	90.00	180.00	7,869.0	-1,745.3	-56.0	1,745.9	0.00	0.00	0.00
10,200.0	90.00	180.00	7,869.0	-1,845.3	-56.0	1,845.9	0.00	0.00	0.00
10,300.0	90.00	180.00	7,869.0	-1,945.3	-56.0	1,945.9	0.00	0.00	0.00
10,400.0	90.00	180.00	7,869.0	-2,045.3	-56.0	2,045.9	0.00	0.00	0.00
10,500.0	90.00	180.00	7,869.0	-2,145.3	-56.0	2,145.9	0.00	0.00	0.00
10,600.0	90.00	180.00	7,869.0	-2,245.3	-56.0	2,245.9	0.00	0.00	0.00
10,700.0	90.00	180.00	7,869.0	-2,345.3	-56.0	2,345.9	0.00	0.00	0.00
10,800.0	90.00	180.00	7,869.0	-2,445.3	-56.0	2,445.9	0.00	0.00	0.00
10,900.0	90.00	180.00	7,869.0	-2,545.3	-56.0	2,545.8	0.00	0.00	0.00
11,000.0	90.00	180.00	7,869.0	-2,645.3	-56.0	2,645.8	0.00	0.00	0.00
11,100.0	90.00	180.00	7,869.0	-2,745.3	-56.0	2,745.8	0.00	0.00	0.00
11,200.0	90.00	180.00	7,869.0	-2,845.3	-56.0	2,845.8	0.00	0.00	0.00
11,300.0	90.00	180.00	7,869.0	-2,945.3	-56.0	2,945.8	0.00	0.00	0.00
11,400.0	90.00	180.00	7,869.0	-3,045.3	-56.0	3,045.8	0.00	0.00	0.00
11,500.0	90.00	180.00	7,869.0	-3,145.3	-56.0	3,145.8	0.00	0.00	0.00
11,600.0	90.00	180.00	7,869.0	-3,245.3	-56.0	3,245.8	0.00	0.00	0.00
11,700.0	90.00	180.00	7,869.0	-3,345.3	-56.0	3,345.8	0.00	0.00	0.00
11,800.0	90.00	180.00	7,869.0	-3,445.3	-56.0	3,445.7	0.00	0.00	0.00
11,900.0	90.00	180.00	7,869.0	-3,545.3	-56.0	3,545.7	0.00	0.00	0.00
12,000.0	90.00	180.00	7,869.0	-3,645.3	-56.0	3,645.7	0.00	0.00	0.00
12,100.0	90.00	180.00	7,869.0	-3,745.3	-56.0	3,745.7	0.00	0.00	0.00
12,139.6	90.00	180.00	7,869.0	-3,784.9	-56.0	3,785.3	0.00	0.00	0.00
TD at 12139.6 - BHL 500'FSL & 774'FWL									

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6J-443
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6J-443	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 807'FNL & 855'FWL - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,242,662.21	3,157,651.32	39.998120	-104.937280
50' E/W Hardline (6J-44; - plan misses target center by 1896.7ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W100.0 H3,778.0 D0.0)	0.00	0.00	1.0	-1,895.9	-56.0	1,240,766.06	3,157,607.35	39.992916	-104.937480
BHL 500'FSL & 774'FWL - plan hits target center - Point	0.00	0.00	7,869.0	-3,784.9	-56.0	1,238,877.13	3,157,619.30	39.987730	-104.937480

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
8,361.6	7,869.0	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,458.3	4,429.0	Parkman		0.00		
4,832.7	4,799.0	Sussex		0.00		
5,419.7	5,379.0	Shannon		0.00		
7,433.3	7,371.0	Sharon Springs		0.00		
7,492.9	7,426.0	Niobrara A		0.00		
7,689.6	7,592.0	Niobrara B		0.00		
7,868.0	7,715.0	Niobrara C		0.00		
8,173.7	7,846.0	Fort Hays		0.00		
8,322.6	7,868.0	Codell		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,600.0	1,600.0	0.0	0.0	KOP - Start Build 1.50	
6,614.8	6,560.0	723.1	-53.5	Start Drop -2.00	
7,161.6	7,105.0	757.0	-56.0	KOP #2 - Start Build 7.50	
8,361.6	7,869.0	-6.9	-56.0	Start 3778.0 hold at 8361.6 MD	
12,139.6	7,869.0	-3,784.9	-56.0	TD at 12139.6	



Directional

PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.6-T1S-R67W

Corcilus 1S67W6J Pad Sec.6-T1S-R67W

Corcilus 6J-443

Wellbore #1

Plan #1 (4-29-15)

Anticollision Report

23 September, 2015



Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date 5/5/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,139.6	Plan #1 (4-29-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Corcilius 1S67W6J Pad Sec.6-T1S-R67W						
Corcilius 6E-203 - Wellbore #1 - Plan #1 (4-29-15)	166.3	167.3	89.7	89.1	170.710	CC
Corcilius 6E-203 - Wellbore #1 - Plan #1 (4-29-15)	200.0	201.0	89.7	89.0	132.530	ES
Corcilius 6E-203 - Wellbore #1 - Plan #1 (4-29-15)	12,139.6	11,947.7	766.6	616.5	5.107	SF
Corcilius 6E-223 - Wellbore #1 - Plan #1 (4-29-15)	766.3	767.3	28.0	24.8	8.695	CC
Corcilius 6E-223 - Wellbore #1 - Plan #1 (4-29-15)	800.0	801.0	28.0	24.6	8.305	ES
Corcilius 6E-223 - Wellbore #1 - Plan #1 (4-29-15)	12,139.6	11,928.8	406.5	276.9	3.135	SF
Corcilius 6E-323 - Wellbore #1 - Plan #1 (4-29-15)	366.3	367.3	58.8	57.4	41.310	CC
Corcilius 6E-323 - Wellbore #1 - Plan #1 (4-29-15)	400.0	401.0	58.8	57.3	37.343	ES
Corcilius 6E-323 - Wellbore #1 - Plan #1 (4-29-15)	12,139.6	12,035.9	536.4	384.3	3.526	SF
Corcilius 6J-203 - Wellbore #1 - Plan #1 (4-29-15)	1,200.0	1,200.0	31.0	25.9	6.003	CC, ES
Corcilius 6J-203 - Wellbore #1 - Plan #1 (4-29-15)	12,139.6	11,954.7	421.2	288.6	3.177	SF
Corcilius 6J-303 - Wellbore #1 - Plan #1 (4-29-15)	800.0	799.0	61.7	58.4	18.326	CC, ES
Corcilius 6J-303 - Wellbore #1 - Plan #1 (4-29-15)	12,139.6	12,050.9	690.9	537.0	4.490	SF
Existing Wells Sec.6-T1S-R67W						
Bredehoft 13-6 (Exist.) - Wellbore #1 - Wellbore #1	10,772.5	7,881.0	225.8	156.7	3.268	CC, ES, SF
Sack 12-6 (Exist.) - Wellbore #1 - Wellbore #1	9,490.8	7,864.0	377.9	329.9	7.871	CC
Sack 12-6 (Exist.) - Wellbore #1 - Wellbore #1	9,500.0	7,864.0	378.1	329.9	7.851	ES, SF
Sack 22-6 (Exist.) - Wellbore #1 - Wellbore #1	8,812.7	7,863.7	442.6	402.7	11.098	CC, ES
Sack 22-6 (Exist.) - Wellbore #1 - Wellbore #1	8,900.0	7,859.0	451.1	410.3	11.051	SF
Veal 14-6 (Exist.) - Wellbore #1 - Wellbore #1	11,548.7	7,894.8	193.5	112.0	2.373	CC, ES, SF

Offset Design	Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6E-203 - Wellbore #1 - Plan #1 (4-29-15)											Offset Site Error:	0.0 ft
Survey Program:	0-MWD											Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis			Distance								Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-89.7	89.7	89.7	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-89.7	89.7	89.4	0.23	394.931	
166.3	166.3	167.3	167.3	0.3	0.3	-90.00	0.0	-89.7	89.7	89.1	0.53	170.710	CC
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-89.7	89.7	89.0	0.68	132.530	ES
300.0	300.0	300.0	300.0	0.6	0.6	-89.39	1.0	-90.5	90.5	89.4	1.12	80.744	
400.0	400.0	397.7	397.6	0.8	0.8	-87.67	3.8	-93.1	93.2	91.7	1.57	59.494	

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	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)				
500.0	500.0	495.7	495.4	1.0	1.0	-85.03	8.5	-97.3	97.9	95.9	2.02	48.451			
600.0	600.0	593.4	592.7	1.2	1.3	-81.74	15.0	-103.3	104.7	102.2	2.48	42.220			
700.0	700.0	690.5	689.2	1.5	1.5	-78.13	23.3	-110.8	113.8	110.9	2.94	38.672			
800.0	800.0	787.0	784.7	1.7	1.8	-74.47	33.3	-119.9	125.5	122.1	3.41	36.794			
900.0	900.0	882.9	879.2	1.9	2.2	-70.96	45.1	-130.6	139.8	136.0	3.88	36.024			
1,000.0	1,000.0	981.3	976.1	2.1	2.5	-67.84	58.0	-142.3	155.6	151.3	4.35	35.756			
1,100.0	1,100.0	1,079.7	1,073.0	2.4	2.9	-65.30	70.8	-154.0	171.8	167.0	4.82	35.656			
1,200.0	1,200.0	1,178.1	1,169.8	2.6	3.3	-63.19	83.7	-165.7	188.3	183.0	5.28	35.629			
1,300.0	1,300.0	1,276.5	1,266.7	2.8	3.7	-61.43	96.6	-177.4	204.9	199.2	5.75	35.642			
1,400.0	1,400.0	1,375.0	1,363.6	3.0	4.0	-59.93	109.5	-189.1	221.7	215.5	6.21	35.678			
1,500.0	1,500.0	1,473.4	1,460.4	3.3	4.4	-58.64	122.4	-200.8	238.7	232.0	6.68	35.725			
1,600.0	1,600.0	1,571.8	1,557.3	3.5	4.8	-57.52	135.3	-212.5	255.7	248.5	7.15	35.778			
1,700.0	1,700.0	1,670.4	1,654.4	3.7	5.2	-52.33	148.2	-224.3	272.0	264.4	7.66	35.530			
1,800.0	1,799.9	1,769.3	1,751.7	3.9	5.6	-51.90	161.2	-236.0	286.8	278.7	8.13	35.263			
1,900.0	1,899.7	1,868.4	1,849.2	4.2	6.0	-51.91	174.1	-247.8	300.0	291.4	8.62	34.812			
2,000.0	1,999.3	1,967.7	1,947.0	4.4	6.4	-52.30	187.1	-259.6	311.6	302.5	9.11	34.198			
2,100.0	2,098.6	2,067.1	2,044.8	4.6	6.8	-53.05	200.2	-271.4	321.6	312.0	9.62	33.440			
2,189.0	2,186.7	2,155.5	2,131.8	4.8	7.1	-53.99	211.7	-282.0	329.4	319.3	10.09	32.653			
2,200.0	2,197.5	2,166.5	2,142.6	4.9	7.2	-54.13	213.2	-283.3	330.2	320.1	10.15	32.549			
2,300.0	2,296.4	2,265.9	2,240.4	5.1	7.6	-55.40	226.2	-295.1	338.4	327.7	10.69	31.641			
2,400.0	2,395.2	2,365.3	2,338.3	5.4	8.0	-56.60	239.2	-306.9	346.7	335.4	11.26	30.798			
2,500.0	2,494.0	2,464.7	2,436.1	5.7	8.4	-57.74	252.2	-318.7	355.1	343.3	11.83	30.014			
2,600.0	2,592.8	2,564.1	2,533.9	6.0	8.8	-58.84	265.2	-330.5	363.7	351.3	12.42	29.286			
2,700.0	2,691.6	2,663.5	2,631.7	6.3	9.2	-59.88	278.3	-342.4	372.4	359.4	13.02	28.608			
2,800.0	2,790.4	2,762.9	2,729.6	6.6	9.6	-60.87	291.3	-354.2	381.3	367.6	13.63	27.979			
2,900.0	2,889.2	2,862.2	2,827.4	6.9	9.9	-61.82	304.3	-366.0	390.2	376.0	14.24	27.393			
3,000.0	2,988.0	2,961.6	2,925.2	7.2	10.3	-62.73	317.3	-377.8	399.2	384.4	14.87	26.847			
3,100.0	3,086.9	3,061.0	3,023.0	7.6	10.7	-63.60	330.3	-389.7	408.4	392.9	15.50	26.338			
3,200.0	3,185.7	3,160.4	3,120.9	7.9	11.1	-64.42	343.3	-401.5	417.6	401.5	16.15	25.864			
3,300.0	3,284.5	3,259.8	3,218.7	8.2	11.5	-65.22	356.4	-413.3	426.9	410.1	16.79	25.421			
3,400.0	3,383.3	3,359.2	3,316.5	8.5	11.9	-65.98	369.4	-425.1	436.3	418.8	17.45	25.007			
3,500.0	3,482.1	3,458.6	3,414.4	8.9	12.3	-66.70	382.4	-436.9	445.7	427.6	18.11	24.619			
3,600.0	3,580.9	3,558.0	3,512.2	9.2	12.7	-67.40	395.4	-448.8	455.3	436.5	18.77	24.256			
3,700.0	3,679.7	3,657.4	3,610.0	9.5	13.1	-68.07	408.4	-460.6	464.9	445.4	19.44	23.916			
3,800.0	3,778.6	3,756.8	3,707.8	9.9	13.5	-68.71	421.5	-472.4	474.5	454.4	20.11	23.596			
3,900.0	3,877.4	3,856.2	3,805.7	10.2	13.9	-69.32	434.5	-484.2	484.2	463.4	20.79	23.296			
4,000.0	3,976.2	3,955.6	3,903.5	10.6	14.3	-69.91	447.5	-496.1	494.0	472.5	21.46	23.013			
4,100.0	4,075.0	4,055.0	4,001.3	10.9	14.7	-70.48	460.5	-507.9	503.8	481.6	22.15	22.747			
4,200.0	4,173.8	4,154.4	4,099.2	11.2	15.1	-71.03	473.5	-519.7	513.6	490.8	22.83	22.496			
4,300.0	4,272.6	4,253.8	4,197.0	11.6	15.5	-71.56	486.5	-531.5	523.5	500.0	23.52	22.258			
4,400.0	4,371.4	4,353.2	4,294.8	11.9	15.9	-72.06	499.6	-543.4	533.5	509.3	24.21	22.034			
4,500.0	4,470.2	4,452.6	4,392.6	12.3	16.3	-72.55	512.6	-555.2	543.5	518.5	24.90	21.822			
4,600.0	4,569.1	4,552.0	4,490.5	12.6	16.7	-73.02	525.6	-567.0	553.5	527.9	25.60	21.621			
4,700.0	4,667.9	4,651.4	4,588.3	13.0	17.1	-73.47	538.6	-578.8	563.5	537.2	26.30	21.431			
4,800.0	4,766.7	4,750.8	4,686.1	13.3	17.5	-73.91	551.6	-590.6	573.6	546.6	26.99	21.250			
4,900.0	4,865.5	4,850.2	4,783.9	13.7	17.9	-74.34	564.6	-602.5	583.7	556.0	27.69	21.078			
5,000.0	4,964.3	4,949.6	4,881.8	14.0	18.3	-74.74	577.7	-614.3	593.9	565.5	28.40	20.915			
5,100.0	5,063.1	5,048.9	4,979.6	14.4	18.7	-75.14	590.7	-626.1	604.1	575.0	29.10	20.760			
5,200.0	5,161.9	5,148.3	5,077.4	14.7	19.1	-75.52	603.7	-637.9	614.3	584.5	29.80	20.612			
5,300.0	5,260.8	5,247.7	5,175.3	15.1	19.5	-75.89	616.7	-649.8	624.5	594.0	30.51	20.470			
5,400.0	5,359.6	5,347.1	5,273.1	15.4	19.9	-76.25	629.7	-661.6	634.8	603.6	31.21	20.336			

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	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)				
5,500.0	5,458.4	5,446.5	5,370.9	15.8	20.3	-76.59	642.7	-673.4	645.1	613.1	31.92	20.207			
5,600.0	5,557.2	5,545.9	5,468.7	16.1	20.7	-76.93	655.8	-685.2	655.4	622.7	32.63	20.084			
5,700.0	5,656.0	5,645.3	5,566.6	16.5	21.1	-77.25	668.8	-697.0	665.7	632.4	33.34	19.967			
5,800.0	5,754.8	5,744.7	5,664.4	16.8	21.5	-77.57	681.8	-708.9	676.0	642.0	34.05	19.854			
5,900.0	5,853.6	5,844.1	5,762.2	17.2	21.9	-77.87	694.8	-720.7	686.4	651.6	34.76	19.746			
6,000.0	5,952.5	5,943.5	5,860.1	17.5	22.3	-78.17	707.8	-732.5	696.8	661.3	35.47	19.643			
6,100.0	6,051.3	6,042.9	5,957.9	17.9	22.7	-78.45	720.9	-744.3	707.2	671.0	36.19	19.544			
6,200.0	6,150.1	6,157.0	6,070.4	18.2	23.1	-78.83	735.0	-757.2	717.0	680.1	36.91	19.425			
6,300.0	6,248.9	6,279.6	6,191.9	18.6	23.4	-79.48	746.7	-767.8	723.8	686.2	37.64	19.228			
6,400.0	6,347.7	6,402.1	6,313.9	18.9	23.6	-80.38	754.5	-774.9	727.5	689.2	38.38	18.957			
6,500.0	6,446.5	6,523.9	6,435.7	19.3	23.8	-81.56	758.5	-778.5	728.3	689.2	39.11	18.624			
6,600.0	6,545.3	6,634.6	6,546.3	19.7	24.0	-82.84	759.0	-779.0	726.7	686.8	39.81	18.251			
6,614.8	6,560.0	6,649.3	6,561.0	19.7	24.0	-83.02	759.0	-779.0	726.4	686.5	39.92	18.198			
6,700.0	6,644.3	6,733.6	6,645.3	20.0	24.1	-83.91	759.0	-779.0	725.0	684.6	40.43	17.934			
6,800.0	6,743.8	6,833.0	6,744.8	20.2	24.2	-84.73	759.0	-779.0	724.0	683.0	40.93	17.689			
6,900.0	6,843.5	6,932.8	6,844.5	20.4	24.4	-85.28	759.0	-779.0	723.3	682.0	41.36	17.490			
7,000.0	6,943.4	7,032.8	6,944.4	20.6	24.5	-85.77	756.4	-779.0	723.0	681.3	41.70	17.337			
7,030.9	6,974.3	7,063.3	6,974.8	20.6	24.5	-86.06	753.3	-779.0	723.0	681.2	41.79	17.299			
7,056.6	7,000.0	7,088.6	6,999.9	20.7	24.5	-90.57	749.8	-779.0	723.0	681.1	41.87	17.269			
7,100.0	7,043.4	7,130.7	7,041.2	20.7	24.5	-91.18	742.1	-779.0	723.1	681.1	41.99	17.220			
7,161.6	7,105.1	7,188.7	7,097.4	20.8	24.4	-92.31	727.8	-779.0	723.6	681.4	42.18	17.156			
7,200.0	7,143.4	7,223.9	7,130.9	20.9	24.3	86.87	717.1	-779.0	724.2	681.9	42.27	17.130			
7,250.0	7,193.2	7,269.1	7,173.2	20.9	24.3	85.81	701.1	-779.0	725.1	682.7	42.34	17.126			
7,300.0	7,242.7	7,313.6	7,213.9	20.9	24.2	84.78	682.9	-779.0	726.2	683.9	42.34	17.153			
7,350.0	7,291.5	7,357.6	7,252.8	20.9	24.1	83.78	662.6	-779.0	727.6	685.3	42.27	17.211			
7,400.0	7,339.6	7,400.0	7,289.3	20.8	23.9	82.82	641.0	-779.0	729.1	686.9	42.15	17.296			
7,450.0	7,386.6	7,443.8	7,325.6	20.7	23.8	81.86	616.5	-779.0	730.8	688.8	41.97	17.411			
7,500.0	7,432.5	7,486.1	7,359.4	20.6	23.7	80.95	591.0	-779.0	732.6	690.9	41.74	17.552			
7,550.0	7,476.9	7,528.0	7,391.3	20.4	23.5	80.08	563.9	-779.0	734.5	693.1	41.46	17.717			
7,600.0	7,519.7	7,569.5	7,421.5	20.3	23.4	79.25	535.3	-779.0	736.5	695.4	41.13	17.905			
7,650.0	7,560.8	7,610.6	7,449.8	20.1	23.2	78.46	505.5	-779.0	738.5	697.7	40.77	18.112			
7,700.0	7,599.9	7,650.0	7,475.3	20.0	23.1	77.73	475.6	-779.0	740.5	700.1	40.39	18.333			
7,750.0	7,636.9	7,691.8	7,500.7	19.8	22.9	77.02	442.3	-779.0	742.5	702.5	39.99	18.569			
7,800.0	7,671.7	7,732.0	7,523.4	19.6	22.8	76.37	409.2	-779.0	744.5	704.9	39.58	18.810			
7,850.0	7,704.0	7,771.9	7,544.1	19.5	22.6	75.77	375.1	-779.0	746.4	707.2	39.18	19.051			
7,900.0	7,733.7	7,811.6	7,562.9	19.3	22.5	75.22	340.1	-779.0	748.2	709.4	38.79	19.286			
7,950.0	7,760.7	7,850.0	7,579.4	19.2	22.3	74.73	305.5	-779.0	749.9	711.4	38.44	19.507			
8,000.0	7,785.0	7,890.4	7,594.8	19.1	22.2	74.28	268.2	-779.0	751.4	713.3	38.13	19.706			
8,050.0	7,806.3	7,929.5	7,607.9	19.0	22.0	73.89	231.3	-779.0	752.8	714.9	37.88	19.874			
8,100.0	7,824.6	7,968.5	7,619.0	18.9	21.9	73.56	193.9	-779.0	754.0	716.3	37.69	20.005			
8,150.0	7,839.9	8,007.4	7,628.2	18.9	21.8	73.28	156.1	-779.0	755.0	717.4	37.58	20.092			
8,200.0	7,852.0	8,050.0	7,636.0	18.9	21.6	73.05	114.2	-779.0	755.9	718.3	37.55	20.128			
8,250.0	7,860.9	8,084.9	7,640.6	19.0	21.5	72.90	79.7	-779.0	756.5	718.8	37.62	20.109			
8,300.0	7,866.5	8,123.6	7,643.9	19.1	21.4	72.79	41.1	-779.0	756.9	719.1	37.78	20.034			
8,350.0	7,868.9	8,162.2	7,645.3	19.3	21.3	72.74	2.5	-779.0	757.1	719.0	38.03	19.907			
8,361.6	7,869.0	8,171.2	7,645.3	19.3	21.3	72.74	-6.5	-779.0	757.1	719.0	38.10	19.870			
8,400.0	7,869.0	8,208.2	7,645.0	19.5	21.2	72.72	-43.5	-779.0	757.2	718.8	38.41	19.712			
8,500.0	7,869.0	8,308.2	7,644.2	20.0	21.1	72.66	-143.5	-779.0	757.4	718.0	39.44	19.202			
8,600.0	7,869.0	8,408.2	7,643.4	20.7	21.4	72.60	-243.5	-779.0	757.6	716.9	40.78	18.577			
8,700.0	7,869.0	8,508.2	7,642.6	21.5	22.2	72.54	-343.5	-779.0	757.9	715.5	42.40	17.874			
8,800.0	7,869.0	8,608.2	7,641.8	22.5	23.3	72.48	-443.5	-779.0	758.1	713.9	44.26	17.127			

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6E-203 - Wellbore #1 - Plan #1 (4-29-15)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
							+N/-S (ft)	+E/-W (ft)									
8,900.0	7,869.0	8,708.2	7,641.0	23.6	24.4	72.43	-543.5	-779.0	758.4	712.0	46.34	16.364					
9,000.0	7,869.0	8,808.2	7,640.2	24.8	25.6	72.37	-643.4	-779.0	758.6	710.0	48.61	15.606					
9,100.0	7,869.0	8,908.2	7,639.4	26.0	26.9	72.31	-743.4	-779.0	758.9	707.8	51.04	14.867					
9,200.0	7,869.0	9,008.2	7,638.6	27.4	28.2	72.25	-843.4	-779.0	759.1	705.5	53.61	14.159					
9,300.0	7,869.0	9,108.2	7,637.8	28.8	29.6	72.20	-943.4	-779.0	759.3	703.0	56.30	13.487					
9,400.0	7,869.0	9,208.2	7,637.0	30.3	31.1	72.14	-1,043.4	-779.0	759.6	700.5	59.09	12.854					
9,500.0	7,869.0	9,308.2	7,636.2	31.8	32.6	72.08	-1,143.4	-779.0	759.8	697.9	61.98	12.260					
9,600.0	7,869.0	9,408.2	7,635.4	33.3	34.1	72.02	-1,243.4	-779.0	760.1	695.1	64.94	11.705					
9,700.0	7,869.0	9,508.2	7,634.6	34.9	35.7	71.96	-1,343.4	-779.0	760.3	692.4	67.96	11.187					
9,800.0	7,869.0	9,608.2	7,633.8	36.5	37.3	71.91	-1,443.4	-779.0	760.6	689.5	71.05	10.705					
9,900.0	7,869.0	9,708.2	7,633.0	38.2	38.9	71.85	-1,543.4	-779.0	760.8	686.6	74.18	10.256					
10,000.0	7,869.0	9,808.1	7,632.2	39.9	40.6	71.79	-1,643.4	-779.0	761.1	683.7	77.36	9.838					
10,100.0	7,869.0	9,908.1	7,631.4	41.6	42.3	71.73	-1,743.4	-779.0	761.3	680.7	80.58	9.449					
10,200.0	7,869.0	10,008.1	7,630.6	43.3	43.9	71.68	-1,843.4	-779.0	761.6	677.7	83.83	9.085					
10,300.0	7,869.0	10,108.1	7,629.8	45.0	45.7	71.62	-1,943.4	-779.0	761.8	674.7	87.11	8.746					
10,400.0	7,869.0	10,208.1	7,629.0	46.7	47.4	71.56	-2,043.4	-779.0	762.1	671.7	90.41	8.429					
10,500.0	7,869.0	10,308.1	7,628.2	48.5	49.1	71.51	-2,143.4	-779.0	762.3	668.6	93.74	8.132					
10,600.0	7,869.0	10,408.1	7,627.4	50.3	50.9	71.45	-2,243.3	-779.0	762.6	665.5	97.09	7.854					
10,700.0	7,869.0	10,508.1	7,626.6	52.0	52.6	71.39	-2,343.3	-779.0	762.8	662.4	100.46	7.594					
10,800.0	7,869.0	10,608.1	7,625.8	53.8	54.4	71.33	-2,443.3	-779.0	763.1	659.3	103.84	7.349					
10,900.0	7,869.0	10,708.1	7,625.0	55.6	56.2	71.28	-2,543.3	-779.0	763.4	656.1	107.24	7.118					
11,000.0	7,869.0	10,808.1	7,624.2	57.4	57.9	71.22	-2,643.3	-779.0	763.6	653.0	110.65	6.901					
11,100.0	7,869.0	10,908.1	7,623.4	59.2	59.7	71.16	-2,743.3	-779.0	763.9	649.8	114.07	6.696					
11,200.0	7,869.0	11,008.1	7,622.6	61.1	61.5	71.11	-2,843.3	-779.0	764.1	646.6	117.51	6.503					
11,300.0	7,869.0	11,108.1	7,621.8	62.9	63.3	71.05	-2,943.3	-779.0	764.4	643.4	120.95	6.320					
11,400.0	7,869.0	11,208.1	7,621.0	64.7	65.2	70.99	-3,043.3	-779.0	764.7	640.3	124.40	6.147					
11,500.0	7,869.0	11,308.1	7,620.2	66.5	67.0	70.94	-3,143.3	-779.0	764.9	637.1	127.86	5.983					
11,600.0	7,869.0	11,408.1	7,619.3	68.4	68.8	70.88	-3,243.3	-779.0	765.2	633.9	131.32	5.827					
11,700.0	7,869.0	11,508.1	7,618.5	70.2	70.6	70.82	-3,343.3	-779.0	765.4	630.6	134.79	5.679					
11,800.0	7,869.0	11,608.1	7,617.7	72.1	72.5	70.76	-3,443.3	-779.0	765.7	627.4	138.27	5.538					
11,900.0	7,869.0	11,708.1	7,616.9	73.9	74.3	70.71	-3,543.3	-779.0	766.0	624.2	141.75	5.404					
12,000.0	7,869.0	11,808.1	7,616.1	75.8	76.1	70.65	-3,643.3	-779.0	766.2	621.0	145.23	5.276					
12,100.0	7,869.0	11,908.1	7,615.3	77.6	78.0	70.59	-3,743.2	-779.0	766.5	617.8	148.72	5.154					
12,139.6	7,869.0	11,947.7	7,615.0	78.4	78.7	70.57	-3,782.9	-779.0	766.6	616.5	150.11	5.107 SF					

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-28.0	28.0	28.0	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-28.0	28.0	27.8	0.23	123.416		
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-28.0	28.0	27.3	0.68	41.412		
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	0.0	-28.0	28.0	26.9	1.13	24.880		
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	0.0	-28.0	28.0	26.4	1.58	17.782		
500.0	500.0	501.0	501.0	1.0	1.0	-90.00	0.0	-28.0	28.0	26.0	2.03	13.835		
600.0	600.0	601.0	601.0	1.2	1.2	-90.00	0.0	-28.0	28.0	25.5	2.47	11.322		
700.0	700.0	701.0	701.0	1.5	1.5	-90.00	0.0	-28.0	28.0	25.1	2.92	9.581		
766.3	766.3	767.3	767.3	1.6	1.6	-90.00	0.0	-28.0	28.0	24.8	3.22	8.695 CC		
800.0	800.0	801.0	801.0	1.7	1.7	-90.00	0.0	-28.0	28.0	24.6	3.37	8.305 ES		
900.0	900.0	900.7	900.7	1.9	1.9	-87.58	1.2	-28.6	28.6	24.8	3.82	7.484		
1,000.0	1,000.0	1,000.0	999.9	2.1	2.1	-81.03	4.8	-30.2	30.6	26.3	4.27	7.167		
1,100.0	1,100.0	1,099.5	1,099.2	2.4	2.4	-72.01	10.7	-32.9	34.6	29.9	4.72	7.340		
1,200.0	1,200.0	1,198.3	1,197.6	2.6	2.6	-62.72	18.9	-36.6	41.3	36.2	5.17	7.997		
1,300.0	1,300.0	1,296.7	1,295.3	2.8	2.8	-54.66	29.3	-41.4	51.1	45.4	5.62	9.079		
1,400.0	1,400.0	1,394.3	1,391.9	3.0	3.1	-48.30	42.0	-47.1	63.8	57.7	6.08	10.494		
1,500.0	1,500.0	1,491.4	1,487.6	3.3	3.4	-43.49	56.8	-53.9	79.4	72.9	6.53	12.152		
1,600.0	1,600.0	1,589.8	1,584.5	3.5	3.7	-40.05	72.7	-61.1	96.4	89.4	6.99	13.794		
1,700.0	1,700.0	1,688.4	1,681.5	3.7	4.1	-33.64	88.7	-68.4	112.6	105.2	7.45	15.111		
1,800.0	1,799.9	1,787.4	1,778.9	3.9	4.4	-32.64	104.7	-75.7	126.7	118.8	7.91	16.016		
1,900.0	1,899.7	1,886.7	1,876.6	4.2	4.8	-32.41	120.8	-83.0	138.6	130.3	8.37	16.555		
2,000.0	1,999.3	1,986.2	1,974.5	4.4	5.1	-32.77	136.9	-90.3	148.4	139.5	8.84	16.780		
2,100.0	2,098.6	2,085.9	2,072.6	4.6	5.5	-33.61	153.0	-97.7	155.9	146.6	9.32	16.737		
2,189.0	2,186.7	2,174.7	2,160.0	4.8	5.8	-34.75	167.4	-104.2	160.9	151.1	9.75	16.503		
2,200.0	2,197.5	2,185.6	2,170.8	4.9	5.9	-34.92	169.2	-105.1	161.4	151.6	9.80	16.462		
2,300.0	2,296.4	2,285.4	2,269.0	5.1	6.2	-36.39	185.4	-112.4	166.1	155.8	10.32	16.099		
2,400.0	2,395.2	2,385.2	2,367.2	5.4	6.6	-37.77	201.5	-119.8	170.9	160.1	10.84	15.763		
2,500.0	2,494.0	2,485.0	2,465.4	5.7	7.0	-39.08	217.7	-127.1	175.8	164.5	11.38	15.450		
2,600.0	2,592.8	2,584.8	2,563.6	6.0	7.4	-40.32	233.8	-134.5	180.8	168.9	11.93	15.159		
2,700.0	2,691.6	2,684.6	2,661.8	6.3	7.8	-41.49	250.0	-141.8	185.9	173.4	12.49	14.887		
2,800.0	2,790.4	2,784.4	2,760.1	6.6	8.1	-42.60	266.2	-149.2	191.1	178.0	13.06	14.633		
2,900.0	2,889.2	2,884.2	2,858.3	6.9	8.5	-43.65	282.3	-156.6	196.3	182.7	13.64	14.395		
3,000.0	2,988.0	2,984.1	2,956.5	7.2	8.9	-44.64	298.5	-163.9	201.6	187.4	14.22	14.172		
3,100.0	3,086.9	3,083.9	3,054.7	7.6	9.3	-45.59	314.6	-171.3	206.9	192.1	14.82	13.963		
3,200.0	3,185.7	3,183.7	3,152.9	7.9	9.7	-46.48	330.8	-178.6	212.3	196.9	15.42	13.766		
3,300.0	3,284.5	3,283.5	3,251.1	8.2	10.1	-47.34	347.0	-186.0	217.8	201.7	16.03	13.581		
3,400.0	3,383.3	3,383.3	3,349.3	8.5	10.5	-48.15	363.1	-193.3	223.2	206.6	16.65	13.407		
3,500.0	3,482.1	3,483.1	3,447.5	8.9	10.9	-48.92	379.3	-200.7	228.8	211.5	17.27	13.243		
3,600.0	3,580.9	3,582.9	3,545.7	9.2	11.3	-49.65	395.4	-208.1	234.3	216.4	17.90	13.089		
3,700.0	3,679.7	3,682.7	3,643.9	9.5	11.6	-50.35	411.6	-215.4	239.9	221.4	18.54	12.943		
3,800.0	3,778.6	3,782.5	3,742.1	9.9	12.0	-51.02	427.8	-222.8	245.6	226.4	19.18	12.805		
3,900.0	3,877.4	3,882.3	3,840.3	10.2	12.4	-51.66	443.9	-230.1	251.3	231.4	19.82	12.675		
4,000.0	3,976.2	3,982.1	3,938.6	10.6	12.8	-52.27	460.1	-237.5	257.0	236.5	20.47	12.552		
4,100.0	4,075.0	4,081.9	4,036.8	10.9	13.2	-52.85	476.2	-244.8	262.7	241.6	21.12	12.435		
4,200.0	4,173.8	4,181.7	4,135.0	11.2	13.6	-53.41	492.4	-252.2	268.4	246.7	21.78	12.325		
4,300.0	4,272.6	4,281.5	4,233.2	11.6	14.0	-53.95	508.6	-259.6	274.2	251.8	22.44	12.220		
4,400.0	4,371.4	4,381.3	4,331.4	11.9	14.4	-54.46	524.7	-266.9	280.0	256.9	23.10	12.121		
4,500.0	4,470.2	4,481.1	4,429.6	12.3	14.8	-54.95	540.9	-274.3	285.9	262.1	23.77	12.026		
4,600.0	4,569.1	4,580.9	4,527.8	12.6	15.2	-55.43	557.0	-281.6	291.7	267.3	24.44	11.936		
4,700.0	4,667.9	4,680.7	4,626.0	13.0	15.6	-55.88	573.2	-289.0	297.6	272.5	25.11	11.851		
4,800.0	4,766.7	4,780.5	4,724.2	13.3	16.0	-56.32	589.3	-296.3	303.4	277.7	25.78	11.769		

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	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				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,865.5	4,880.3	4,822.4	13.7	16.4	-56.74	605.5	-303.7	309.3	282.9	26.46	11.691	
5,000.0	4,964.3	4,980.1	4,920.6	14.0	16.8	-57.14	621.7	-311.1	315.3	288.1	27.14	11.617	
5,100.0	5,063.1	5,079.9	5,018.8	14.4	17.2	-57.53	637.8	-318.4	321.2	293.4	27.82	11.547	
5,200.0	5,161.9	5,179.7	5,117.1	14.7	17.6	-57.90	654.0	-325.8	327.1	298.6	28.50	11.479	
5,300.0	5,260.8	5,279.5	5,215.3	15.1	18.0	-58.27	670.1	-333.1	333.1	303.9	29.18	11.414	
5,400.0	5,359.6	5,379.3	5,313.5	15.4	18.4	-58.61	686.3	-340.5	339.1	309.2	29.87	11.353	
5,500.0	5,458.4	5,479.1	5,411.7	15.8	18.8	-58.95	702.5	-347.8	345.0	314.5	30.55	11.293	
5,600.0	5,557.2	5,581.0	5,512.0	16.1	19.1	-59.29	718.9	-355.3	351.0	319.7	31.24	11.234	
5,700.0	5,656.0	5,691.3	5,621.0	16.5	19.5	-59.94	734.1	-362.2	354.9	323.0	31.93	11.114	
5,800.0	5,754.8	5,801.5	5,730.5	16.8	19.7	-61.02	745.4	-367.4	356.0	323.3	32.66	10.899	
5,900.0	5,853.6	5,911.3	5,840.0	17.2	20.0	-62.55	752.9	-370.8	354.3	320.9	33.42	10.601	
6,000.0	5,952.5	6,020.4	5,949.0	17.5	20.1	-64.55	756.6	-372.5	350.1	315.9	34.23	10.229	
6,100.0	6,051.3	6,123.7	6,052.3	17.9	20.3	-66.88	757.0	-372.7	344.0	309.0	35.05	9.815	
6,200.0	6,150.1	6,222.5	6,151.1	18.2	20.4	-69.25	757.0	-372.7	338.2	302.4	35.87	9.428	
6,300.0	6,248.9	6,321.3	6,249.9	18.6	20.5	-71.70	757.0	-372.7	333.0	296.3	36.70	9.075	
6,400.0	6,347.7	6,420.1	6,348.7	18.9	20.7	-74.21	757.0	-372.7	328.5	291.0	37.52	8.756	
6,500.0	6,446.5	6,518.9	6,447.5	19.3	20.8	-76.79	757.0	-372.7	324.6	286.3	38.32	8.470	
6,600.0	6,545.3	6,617.7	6,546.3	19.7	21.0	-79.43	757.0	-372.7	321.4	282.3	39.12	8.217	
6,614.8	6,560.0	6,632.4	6,561.0	19.7	21.0	-79.83	757.0	-372.7	321.0	281.8	39.23	8.182	
6,700.0	6,644.3	6,716.7	6,645.3	20.0	21.1	-81.86	757.0	-372.7	319.1	279.3	39.82	8.013	
6,800.0	6,743.8	6,816.1	6,744.8	20.2	21.3	-83.73	757.0	-372.7	317.7	277.4	40.38	7.869	
6,900.0	6,843.5	6,915.9	6,844.5	20.4	21.4	-85.01	757.0	-372.7	317.0	276.2	40.84	7.762	
7,000.0	6,943.4	7,015.7	6,944.2	20.6	21.5	-86.14	754.4	-372.7	316.7	275.5	41.22	7.684	
7,011.4	6,954.8	7,027.0	6,955.5	20.6	21.6	-86.36	753.4	-372.7	316.7	275.5	41.25	7.677	
7,056.6	7,000.0	7,071.4	6,999.6	20.7	21.6	-91.66	747.8	-372.7	316.8	275.4	41.40	7.653	
7,100.0	7,043.4	7,113.4	7,040.8	20.7	21.5	-93.04	740.2	-372.7	317.1	275.6	41.53	7.636	
7,161.6	7,105.1	7,171.3	7,096.9	20.8	21.5	-95.60	726.0	-372.7	318.3	276.6	41.72	7.631	
7,200.0	7,143.4	7,206.4	7,130.3	20.9	21.4	82.55	715.3	-372.7	319.6	277.8	41.79	7.647	
7,250.0	7,193.2	7,250.0	7,171.2	20.9	21.3	80.27	699.9	-372.7	321.7	279.9	41.81	7.696	
7,300.0	7,242.7	7,295.9	7,213.1	20.9	21.2	77.92	681.2	-372.7	324.4	282.7	41.73	7.774	
7,350.0	7,291.5	7,339.8	7,252.1	20.9	21.1	75.73	661.0	-372.7	327.5	285.9	41.56	7.880	
7,400.0	7,339.6	7,383.1	7,289.3	20.8	21.0	73.64	639.0	-372.7	330.9	289.6	41.30	8.013	
7,450.0	7,386.6	7,425.9	7,324.8	20.7	20.8	71.65	615.1	-372.7	334.7	293.7	40.95	8.172	
7,500.0	7,432.5	7,468.2	7,358.5	20.6	20.7	69.77	589.6	-372.7	338.6	298.1	40.52	8.356	
7,550.0	7,476.9	7,510.0	7,390.5	20.4	20.6	68.00	562.6	-372.7	342.8	302.7	40.02	8.565	
7,600.0	7,519.7	7,550.0	7,419.6	20.3	20.4	66.39	535.2	-372.7	347.0	307.5	39.46	8.794	
7,650.0	7,560.8	7,592.5	7,448.9	20.1	20.2	64.80	504.4	-372.7	351.3	312.4	38.83	9.047	
7,700.0	7,599.9	7,633.2	7,475.4	20.0	20.1	63.38	473.5	-372.7	355.5	317.3	38.16	9.316	
7,750.0	7,636.9	7,673.6	7,499.9	19.8	19.9	62.07	441.4	-372.7	359.6	322.2	37.46	9.600	
7,800.0	7,671.7	7,713.8	7,522.6	19.6	19.8	60.87	408.3	-372.7	363.7	326.9	36.76	9.893	
7,850.0	7,704.0	7,750.0	7,541.6	19.5	19.7	59.85	377.4	-372.7	367.5	331.4	36.08	10.187	
7,900.0	7,733.7	7,793.3	7,562.3	19.3	19.5	58.81	339.4	-372.7	371.1	335.7	35.38	10.488	
7,950.0	7,760.7	7,832.7	7,579.2	19.2	19.4	57.94	303.8	-372.7	374.4	339.7	34.75	10.774	
8,000.0	7,785.0	7,872.0	7,594.3	19.1	19.3	57.18	267.5	-372.7	377.5	343.3	34.19	11.041	
8,050.0	7,806.3	7,911.1	7,607.4	19.0	19.2	56.52	230.7	-372.7	380.2	346.5	33.71	11.279	
8,100.0	7,824.6	7,950.0	7,618.6	18.9	19.1	55.96	193.4	-372.7	382.5	349.2	33.32	11.479	
8,150.0	7,839.9	7,988.9	7,627.8	18.9	19.1	55.50	155.6	-372.7	384.5	351.4	33.07	11.628	
8,200.0	7,852.0	8,027.7	7,635.1	18.9	19.0	55.14	117.5	-372.7	386.1	353.1	32.94	11.721	
8,250.0	7,860.9	8,066.4	7,640.4	19.0	19.0	54.88	79.2	-372.7	387.2	354.3	32.94	11.754	
8,300.0	7,866.5	8,100.0	7,643.5	19.1	19.0	54.72	45.8	-372.7	388.0	354.9	33.08	11.729	
8,350.0	7,868.9	8,143.8	7,645.3	19.3	19.1	54.65	2.1	-372.7	388.3	354.9	33.39	11.630	

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,361.6	7,869.0	8,152.8	7,645.3	19.3	19.1	54.64	-6.9	-372.7	388.3	354.8	33.47	11.600		
8,361.7	7,869.0	8,152.8	7,645.3	19.3	19.1	54.64	-7.0	-372.7	388.3	354.8	33.47	11.600		
8,400.0	7,869.0	8,189.3	7,645.0	19.5	19.2	54.61	-43.5	-372.7	388.4	354.7	33.77	11.501		
8,500.0	7,869.0	8,289.3	7,644.2	20.0	19.7	54.51	-143.5	-372.7	388.9	354.1	34.77	11.185		
8,600.0	7,869.0	8,389.3	7,643.4	20.7	20.4	54.42	-243.5	-372.7	389.4	353.4	36.02	10.809		
8,700.0	7,869.0	8,489.3	7,642.6	21.5	21.2	54.32	-343.5	-372.7	389.8	352.3	37.51	10.394		
8,800.0	7,869.0	8,589.3	7,641.8	22.5	22.3	54.23	-443.5	-372.7	390.3	351.1	39.20	9.957		
8,900.0	7,869.0	8,689.3	7,641.0	23.6	23.4	54.13	-543.5	-372.7	390.8	349.7	41.07	9.516		
9,000.0	7,869.0	8,789.3	7,640.2	24.8	24.6	54.03	-643.5	-372.7	391.3	348.2	43.09	9.080		
9,100.0	7,869.0	8,889.3	7,639.4	26.0	25.9	53.94	-743.4	-372.7	391.7	346.5	45.25	8.658		
9,200.0	7,869.0	8,989.3	7,638.6	27.4	27.3	53.84	-843.4	-372.7	392.2	344.7	47.51	8.254		
9,300.0	7,869.0	9,089.3	7,637.8	28.8	28.7	53.75	-943.4	-372.7	392.7	342.8	49.88	7.873		
9,400.0	7,869.0	9,189.3	7,637.0	30.3	30.2	53.66	-1,043.4	-372.7	393.1	340.8	52.32	7.514		
9,500.0	7,869.0	9,289.3	7,636.2	31.8	31.7	53.56	-1,143.4	-372.7	393.6	338.8	54.84	7.177		
9,600.0	7,869.0	9,389.3	7,635.4	33.3	33.3	53.47	-1,243.4	-372.7	394.1	336.7	57.42	6.864		
9,700.0	7,869.0	9,489.3	7,634.6	34.9	34.9	53.37	-1,343.4	-372.7	394.6	334.5	60.04	6.571		
9,800.0	7,869.0	9,589.3	7,633.8	36.5	36.5	53.28	-1,443.4	-372.7	395.1	332.3	62.72	6.299		
9,900.0	7,869.0	9,689.2	7,633.0	38.2	38.1	53.19	-1,543.4	-372.7	395.5	330.1	65.42	6.046		
10,000.0	7,869.0	9,789.2	7,632.2	39.9	39.8	53.09	-1,643.4	-372.7	396.0	327.9	68.17	5.810		
10,100.0	7,869.0	9,889.2	7,631.4	41.6	41.5	53.00	-1,743.4	-372.7	396.5	325.6	70.93	5.590		
10,200.0	7,869.0	9,989.2	7,630.6	43.3	43.2	52.91	-1,843.4	-372.7	397.0	323.3	73.73	5.385		
10,300.0	7,869.0	10,089.2	7,629.8	45.0	45.0	52.82	-1,943.4	-372.7	397.5	320.9	76.54	5.193		
10,400.0	7,869.0	10,189.2	7,629.0	46.7	46.7	52.72	-2,043.4	-372.7	398.0	318.6	79.37	5.014		
10,500.0	7,869.0	10,289.2	7,628.2	48.5	48.5	52.63	-2,143.4	-372.7	398.4	316.2	82.21	4.846		
10,600.0	7,869.0	10,389.2	7,627.4	50.3	50.2	52.54	-2,243.3	-372.7	398.9	313.9	85.07	4.689		
10,700.0	7,869.0	10,489.2	7,626.6	52.0	52.0	52.45	-2,343.3	-372.7	399.4	311.5	87.94	4.542		
10,800.0	7,869.0	10,589.2	7,625.8	53.8	53.8	52.36	-2,443.3	-372.7	399.9	309.1	90.82	4.403		
10,900.0	7,869.0	10,689.2	7,625.0	55.6	55.6	52.27	-2,543.3	-372.7	400.4	306.7	93.71	4.273		
11,000.0	7,869.0	10,789.2	7,624.2	57.4	57.4	52.18	-2,643.3	-372.7	400.9	304.3	96.60	4.150		
11,100.0	7,869.0	10,889.2	7,623.4	59.2	59.2	52.09	-2,743.3	-372.7	401.4	301.9	99.50	4.034		
11,200.0	7,869.0	10,989.2	7,622.6	61.1	61.0	51.99	-2,843.3	-372.7	401.9	299.5	102.40	3.924		
11,300.0	7,869.0	11,089.2	7,621.8	62.9	62.8	51.90	-2,943.3	-372.7	402.4	297.1	105.31	3.821		
11,400.0	7,869.0	11,189.2	7,621.0	64.7	64.7	51.81	-3,043.3	-372.7	402.9	294.6	108.22	3.723		
11,500.0	7,869.0	11,289.2	7,620.2	66.5	66.5	51.73	-3,143.3	-372.7	403.4	292.2	111.13	3.630		
11,600.0	7,869.0	11,389.2	7,619.3	68.4	68.3	51.64	-3,243.3	-372.7	403.9	289.8	114.04	3.541		
11,700.0	7,869.0	11,489.2	7,618.5	70.2	70.2	51.55	-3,343.3	-372.7	404.3	287.4	116.96	3.457		
11,800.0	7,869.0	11,589.2	7,617.7	72.1	72.0	51.46	-3,443.3	-372.7	404.8	285.0	119.87	3.377		
11,900.0	7,869.0	11,689.2	7,616.9	73.9	73.9	51.37	-3,543.3	-372.7	405.3	282.6	122.78	3.301		
12,000.0	7,869.0	11,789.2	7,616.1	75.8	75.7	51.28	-3,643.3	-372.7	405.8	280.2	125.70	3.229		
12,100.0	7,869.0	11,889.2	7,615.3	77.6	77.6	51.19	-3,743.3	-372.7	406.4	277.7	128.61	3.160		
12,139.6	7,869.0	11,928.8	7,615.0	78.4	78.2	51.16	-3,782.9	-372.7	406.5	276.9	129.67	3.135 SF		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	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-323 - Wellbore #1 - Plan #1 (4-29-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-58.8	58.8	58.8	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-58.8	58.8	58.6	0.23	259.174		
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-58.8	58.8	58.2	0.68	86.965		
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	0.0	-58.8	58.8	57.7	1.13	52.249		
366.3	366.3	367.3	367.3	0.7	0.7	-90.00	0.0	-58.8	58.8	57.4	1.42	41.310 CC		
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	0.0	-58.8	58.8	57.3	1.58	37.343 ES		
500.0	500.0	500.0	500.0	1.0	1.0	-88.96	1.1	-59.6	59.6	57.6	2.02	29.491		
600.0	600.0	599.1	599.0	1.2	1.2	-86.02	4.3	-61.7	61.9	59.5	2.47	25.101		
700.0	700.0	697.8	697.5	1.5	1.5	-81.63	9.6	-65.3	66.1	63.2	2.92	22.663		
800.0	800.0	796.1	795.4	1.7	1.7	-76.41	17.0	-70.3	72.6	69.2	3.37	21.507		
900.0	900.0	893.9	892.6	1.9	2.0	-71.00	26.4	-76.7	81.6	77.7	3.84	21.267		
1,000.0	1,000.0	991.1	988.7	2.1	2.3	-65.87	37.8	-84.4	93.3	89.0	4.30	21.706		
1,100.0	1,100.0	1,087.5	1,083.8	2.4	2.6	-61.32	51.1	-93.4	107.9	103.1	4.76	22.649		
1,200.0	1,200.0	1,185.7	1,180.4	2.6	2.9	-57.52	65.8	-103.3	124.2	119.0	5.23	23.759		
1,300.0	1,300.0	1,284.1	1,277.1	2.8	3.3	-54.61	80.5	-113.3	141.0	135.3	5.69	24.780		
1,400.0	1,400.0	1,382.4	1,373.9	3.0	3.7	-52.32	95.2	-123.2	158.0	151.9	6.15	25.691		
1,500.0	1,500.0	1,480.8	1,470.6	3.3	4.0	-50.48	109.8	-133.1	175.3	168.6	6.61	26.501		
1,600.0	1,600.0	1,579.2	1,567.4	3.5	4.4	-48.97	124.5	-143.1	192.6	185.6	7.08	27.220		
1,700.0	1,700.0	1,677.7	1,664.3	3.7	4.8	-43.55	139.2	-153.0	209.2	201.6	7.57	27.636		
1,800.0	1,799.9	1,776.6	1,761.6	3.9	5.2	-42.99	154.0	-163.0	223.9	215.9	8.04	27.840		
1,900.0	1,899.7	1,875.8	1,859.2	4.2	5.6	-42.94	168.8	-173.0	236.7	228.2	8.52	27.781		
2,000.0	1,999.3	1,975.2	1,956.9	4.4	6.0	-43.31	183.7	-183.1	247.7	238.7	9.01	27.495		
2,100.0	2,098.6	2,074.7	2,054.8	4.6	6.3	-44.07	198.5	-193.1	256.8	247.2	9.51	27.011		
2,189.0	2,186.7	2,163.3	2,142.0	4.8	6.7	-45.04	211.8	-202.1	263.3	253.4	9.96	26.433		
2,200.0	2,197.5	2,174.3	2,152.7	4.9	6.7	-45.19	213.4	-203.2	264.0	254.0	10.02	26.352		
2,300.0	2,296.4	2,273.9	2,250.7	5.1	7.1	-46.47	228.3	-213.3	270.7	260.2	10.56	25.647		
2,400.0	2,395.2	2,373.4	2,348.7	5.4	7.5	-47.69	243.2	-223.3	277.6	266.5	11.11	24.992		
2,500.0	2,494.0	2,473.0	2,446.6	5.7	7.9	-48.86	258.0	-233.4	284.5	272.8	11.67	24.383		
2,600.0	2,592.8	2,572.6	2,544.6	6.0	8.3	-49.96	272.9	-243.5	291.5	279.3	12.24	23.818		
2,700.0	2,691.6	2,672.2	2,642.6	6.3	8.7	-51.02	287.8	-253.5	298.7	285.9	12.82	23.291		
2,800.0	2,790.4	2,771.8	2,740.5	6.6	9.1	-52.02	302.6	-263.6	306.0	292.5	13.42	22.800		
2,900.0	2,889.2	2,871.4	2,838.5	6.9	9.5	-52.98	317.5	-273.6	313.3	299.3	14.02	22.343		
3,000.0	2,988.0	2,971.0	2,936.4	7.2	9.9	-53.90	332.4	-283.7	320.7	306.1	14.63	21.916		
3,100.0	3,086.9	3,070.6	3,034.4	7.6	10.3	-54.77	347.3	-293.8	328.2	313.0	15.25	21.517		
3,200.0	3,185.7	3,170.2	3,132.4	7.9	10.7	-55.60	362.1	-303.8	335.8	319.9	15.88	21.144		
3,300.0	3,284.5	3,269.8	3,230.3	8.2	11.1	-56.40	377.0	-313.9	343.4	326.9	16.52	20.795		
3,400.0	3,383.3	3,369.4	3,328.3	8.5	11.5	-57.16	391.9	-324.0	351.1	334.0	17.16	20.467		
3,500.0	3,482.1	3,469.0	3,426.3	8.9	11.9	-57.89	406.8	-334.0	358.9	341.1	17.80	20.161		
3,600.0	3,580.9	3,568.6	3,524.2	9.2	12.3	-58.59	421.6	-344.1	366.7	348.3	18.45	19.872		
3,700.0	3,679.7	3,668.2	3,622.2	9.5	12.7	-59.26	436.5	-354.1	374.6	355.5	19.11	19.602		
3,800.0	3,778.6	3,767.8	3,720.2	9.9	13.1	-59.90	451.4	-364.2	382.5	362.8	19.77	19.347		
3,900.0	3,877.4	3,867.4	3,818.1	10.2	13.5	-60.52	466.3	-374.3	390.5	370.1	20.44	19.107		
4,000.0	3,976.2	3,967.0	3,916.1	10.6	13.9	-61.11	481.1	-384.3	398.5	377.4	21.11	18.880		
4,100.0	4,075.0	4,066.6	4,014.0	10.9	14.3	-61.68	496.0	-394.4	406.6	384.8	21.78	18.667		
4,200.0	4,173.8	4,166.2	4,112.0	11.2	14.7	-62.22	510.9	-404.4	414.6	392.2	22.46	18.465		
4,300.0	4,272.6	4,265.8	4,210.0	11.6	15.1	-62.75	525.8	-414.5	422.8	399.6	23.13	18.274		
4,400.0	4,371.4	4,365.4	4,307.9	11.9	15.5	-63.25	540.6	-424.6	430.9	407.1	23.82	18.093		
4,500.0	4,470.2	4,465.0	4,405.9	12.3	16.0	-63.74	555.5	-434.6	439.1	414.6	24.50	17.922		
4,600.0	4,569.1	4,564.6	4,503.9	12.6	16.4	-64.21	570.4	-444.7	447.3	422.1	25.19	17.759		
4,700.0	4,667.9	4,664.2	4,601.8	13.0	16.8	-64.66	585.3	-454.8	455.6	429.7	25.88	17.605		
4,800.0	4,766.7	4,763.8	4,699.8	13.3	17.2	-65.10	600.1	-464.8	463.9	437.3	26.57	17.458		

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	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-323 - 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		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
							+N/-S (ft)	+E/-W (ft)									
4,900.0	4,865.5	4,863.3	4,797.8	13.7	17.6	-65.52	615.0	-474.9	472.2	444.9	27.26	17.319					
5,000.0	4,964.3	4,962.9	4,895.7	14.0	18.0	-65.92	629.9	-484.9	480.5	452.5	27.96	17.186					
5,100.0	5,063.1	5,062.5	4,993.7	14.4	18.4	-66.31	644.7	-495.0	488.8	460.2	28.66	17.059					
5,200.0	5,161.9	5,162.1	5,091.6	14.7	18.8	-66.69	659.6	-505.1	497.2	467.9	29.35	16.938					
5,300.0	5,260.8	5,261.7	5,189.6	15.1	19.2	-67.06	674.5	-515.1	505.6	475.6	30.05	16.823					
5,400.0	5,359.6	5,361.3	5,287.6	15.4	19.6	-67.41	689.4	-525.2	514.0	483.3	30.76	16.713					
5,500.0	5,458.4	5,460.9	5,385.5	15.8	20.0	-67.76	704.2	-535.3	522.5	491.0	31.46	16.608					
5,600.0	5,557.2	5,560.5	5,483.5	16.1	20.4	-68.09	719.1	-545.3	530.9	498.7	32.16	16.507					
5,700.0	5,656.0	5,677.1	5,598.6	16.5	20.7	-68.62	734.6	-555.8	537.8	504.9	32.88	16.356					
5,800.0	5,754.8	5,793.8	5,714.4	16.8	21.0	-69.46	746.2	-563.6	541.6	508.0	33.61	16.116					
5,900.0	5,853.6	5,910.1	5,830.3	17.2	21.3	-70.61	753.8	-568.8	542.4	508.1	34.35	15.793					
6,000.0	5,952.5	6,025.7	5,945.9	17.5	21.4	-72.08	757.6	-571.3	540.4	505.3	35.10	15.397					
6,100.0	6,051.3	6,132.1	6,052.3	17.9	21.6	-73.70	758.0	-571.6	536.2	500.3	35.84	14.959					
6,200.0	6,150.1	6,230.9	6,151.1	18.2	21.7	-75.28	758.0	-571.6	532.0	495.5	36.57	14.548					
6,300.0	6,248.9	6,329.7	6,249.9	18.6	21.8	-76.87	758.0	-571.6	528.3	491.0	37.30	14.164					
6,400.0	6,347.7	6,428.6	6,348.7	18.9	22.0	-78.48	758.0	-571.6	525.0	486.9	38.02	13.807					
6,500.0	6,446.5	6,527.4	6,447.5	19.3	22.1	-80.12	758.0	-571.6	522.1	483.3	38.74	13.476					
6,600.0	6,545.3	6,626.2	6,546.3	19.7	22.3	-81.76	758.0	-571.6	519.6	480.2	39.46	13.170					
6,614.8	6,560.0	6,640.9	6,561.0	19.7	22.3	-82.01	758.0	-571.6	519.3	479.7	39.56	13.127					
6,700.0	6,644.3	6,725.2	6,645.3	20.0	22.4	-83.26	758.0	-571.6	517.8	477.7	40.10	12.914					
6,800.0	6,743.8	6,824.6	6,744.8	20.2	22.5	-84.41	758.0	-571.6	516.6	476.0	40.62	12.720					
6,900.0	6,843.5	6,924.3	6,844.5	20.4	22.7	-85.19	758.0	-571.6	516.0	474.9	41.06	12.566					
7,000.0	6,943.4	7,024.3	6,944.4	20.6	22.8	-85.60	758.0	-571.6	515.7	474.2	41.43	12.448					
7,056.6	7,000.0	7,080.9	7,001.0	20.7	22.9	-89.93	757.6	-571.6	515.6	474.0	41.60	12.396					
7,072.5	7,015.9	7,096.8	7,016.9	20.7	22.9	-90.00	757.0	-571.6	515.6	474.0	41.65	12.381					
7,100.0	7,043.4	7,124.2	7,044.2	20.7	22.9	-90.21	755.1	-571.6	515.6	473.9	41.72	12.358					
7,161.6	7,105.1	7,184.9	7,104.4	20.8	22.9	-91.06	747.4	-571.6	515.7	473.8	41.92	12.303					
7,200.0	7,143.4	7,222.1	7,141.0	20.9	22.9	88.24	740.4	-571.6	515.9	473.9	42.02	12.278					
7,250.0	7,193.2	7,270.2	7,187.6	20.9	22.9	87.35	728.6	-571.6	516.2	474.1	42.08	12.267					
7,300.0	7,242.7	7,317.8	7,232.9	20.9	22.8	86.47	714.2	-571.6	516.6	474.6	42.08	12.278					
7,350.0	7,291.5	7,364.9	7,276.8	20.9	22.7	85.61	697.1	-571.6	517.2	475.2	42.01	12.311					
7,400.0	7,339.6	7,411.6	7,319.2	20.8	22.6	84.78	677.5	-571.6	517.8	475.9	41.89	12.363					
7,450.0	7,386.6	7,458.0	7,360.0	20.7	22.5	83.96	655.5	-571.6	518.6	476.9	41.70	12.435					
7,500.0	7,432.5	7,503.9	7,399.1	20.6	22.3	83.18	631.3	-571.6	519.4	477.9	41.47	12.524					
7,550.0	7,476.9	7,550.0	7,436.8	20.4	22.2	82.42	604.8	-571.6	520.2	479.1	41.19	12.631					
7,600.0	7,519.7	7,594.8	7,471.8	20.3	22.0	81.71	576.8	-571.6	521.2	480.3	40.87	12.752					
7,650.0	7,560.8	7,639.7	7,505.2	20.1	21.9	81.02	546.8	-571.6	522.1	481.6	40.52	12.886					
7,700.0	7,599.9	7,684.4	7,536.6	20.0	21.7	80.38	515.0	-571.6	523.1	482.9	40.15	13.029					
7,750.0	7,636.9	7,728.8	7,565.9	19.8	21.5	79.77	481.7	-571.6	524.0	484.3	39.76	13.180					
7,800.0	7,671.7	7,773.0	7,593.1	19.6	21.4	79.21	446.9	-571.6	525.0	485.6	39.38	13.333					
7,850.0	7,704.0	7,816.9	7,618.1	19.5	21.2	78.68	410.8	-571.6	525.9	486.9	39.00	13.486					
7,900.0	7,733.7	7,860.7	7,640.9	19.3	21.1	78.20	373.4	-571.6	526.8	488.2	38.64	13.634					
7,950.0	7,760.7	7,904.2	7,661.5	19.2	20.9	77.77	335.0	-571.6	527.7	489.3	38.32	13.771					
8,000.0	7,785.0	7,950.0	7,680.6	19.1	20.7	77.37	293.5	-571.6	528.4	490.4	38.03	13.894					
8,050.0	7,806.3	7,990.9	7,695.7	19.0	20.6	77.04	255.5	-571.6	529.1	491.3	37.82	13.991					
8,100.0	7,824.6	8,034.0	7,709.3	18.9	20.5	76.75	214.5	-571.6	529.8	492.1	37.67	14.065					
8,150.0	7,839.9	8,077.1	7,720.5	18.9	20.3	76.51	173.0	-571.6	530.3	492.7	37.59	14.108					
8,200.0	7,852.0	8,120.0	7,729.4	18.9	20.2	76.32	131.0	-571.6	530.7	493.1	37.59	14.118					
8,250.0	7,860.9	8,162.9	7,735.9	19.0	20.1	76.17	88.6	-571.6	531.0	493.3	37.68	14.092					
8,300.0	7,866.5	8,205.7	7,740.0	19.1	20.0	76.08	46.0	-571.6	531.2	493.4	37.86	14.031					
8,350.0	7,868.9	8,250.0	7,741.7	19.3	19.9	76.04	1.7	-571.6	531.3	493.2	38.14	13.932					

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	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-323 - Wellbore #1 - Plan #1 (4-29-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference				Offset			Semi Major Axis			Distance				Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
8,351.2	7,868.9	8,250.0	7,741.7	19.3	19.9	76.04	1.7	-571.6		531.3	493.2	38.14	13.931	
8,361.6	7,869.0	8,258.5	7,741.8	19.3	19.9	76.04	-6.8	-571.6		531.3	493.1	38.21	13.906	
8,400.0	7,869.0	8,296.4	7,741.6	19.5	19.8	76.01	-44.6	-571.6		531.4	492.9	38.51	13.796	
8,500.0	7,869.0	8,396.4	7,741.1	20.0	20.0	75.96	-144.6	-571.6		531.5	491.9	39.55	13.438	
8,600.0	7,869.0	8,496.4	7,740.5	20.7	20.7	75.91	-244.6	-571.6		531.6	490.7	40.90	12.997	
8,700.0	7,869.0	8,596.4	7,740.0	21.5	21.7	75.85	-344.6	-571.6		531.8	489.2	42.54	12.500	
8,800.0	7,869.0	8,696.4	7,739.5	22.5	22.7	75.80	-444.6	-571.6		531.9	487.5	44.43	11.972	
8,900.0	7,869.0	8,796.4	7,739.0	23.6	23.8	75.74	-544.6	-571.6		532.0	485.5	46.54	11.432	
9,000.0	7,869.0	8,896.4	7,738.4	24.8	25.1	75.69	-644.6	-571.6		532.1	483.3	48.84	10.896	
9,100.0	7,869.0	8,996.4	7,737.9	26.0	26.4	75.63	-744.6	-571.6		532.3	481.0	51.31	10.374	
9,200.0	7,869.0	9,096.4	7,737.4	27.4	27.7	75.58	-844.6	-571.6		532.4	478.5	53.92	9.874	
9,300.0	7,869.0	9,196.4	7,736.9	28.8	29.2	75.52	-944.6	-571.6		532.5	475.9	56.66	9.399	
9,400.0	7,869.0	9,296.4	7,736.3	30.3	30.6	75.47	-1,044.6	-571.6		532.7	473.2	59.50	8.953	
9,500.0	7,869.0	9,396.4	7,735.8	31.8	32.1	75.41	-1,144.6	-571.6		532.8	470.4	62.43	8.534	
9,600.0	7,869.0	9,496.4	7,735.3	33.3	33.7	75.36	-1,244.6	-571.6		532.9	467.5	65.44	8.144	
9,700.0	7,869.0	9,596.4	7,734.8	34.9	35.3	75.30	-1,344.6	-571.6		533.0	464.5	68.52	7.780	
9,800.0	7,869.0	9,696.3	7,734.3	36.5	36.9	75.25	-1,444.6	-571.6		533.2	461.5	71.65	7.441	
9,900.0	7,869.0	9,796.3	7,733.7	38.2	38.5	75.20	-1,544.6	-571.6		533.3	458.5	74.84	7.126	
10,000.0	7,869.0	9,896.3	7,733.2	39.9	40.2	75.14	-1,644.6	-571.6		533.4	455.4	78.08	6.832	
10,100.0	7,869.0	9,996.3	7,732.7	41.6	41.9	75.09	-1,744.6	-571.6		533.6	452.2	81.35	6.559	
10,200.0	7,869.0	10,096.3	7,732.2	43.3	43.6	75.03	-1,844.6	-571.6		533.7	449.1	84.65	6.305	
10,300.0	7,869.0	10,196.3	7,731.6	45.0	45.3	74.98	-1,944.6	-571.6		533.8	445.9	87.99	6.067	
10,400.0	7,869.0	10,296.3	7,731.1	46.7	47.0	74.92	-2,044.6	-571.6		534.0	442.6	91.36	5.845	
10,500.0	7,869.0	10,396.3	7,730.6	48.5	48.8	74.87	-2,144.6	-571.6		534.1	439.4	94.74	5.638	
10,600.0	7,869.0	10,496.3	7,730.1	50.3	50.5	74.82	-2,244.6	-571.6		534.3	436.1	98.15	5.443	
10,700.0	7,869.0	10,596.3	7,729.5	52.0	52.3	74.76	-2,344.6	-571.6		534.4	432.8	101.58	5.261	
10,800.0	7,869.0	10,696.3	7,729.0	53.8	54.1	74.71	-2,444.6	-571.6		534.5	429.5	105.02	5.090	
10,900.0	7,869.0	10,796.3	7,728.5	55.6	55.9	74.65	-2,544.6	-571.6		534.7	426.2	108.48	4.929	
11,000.0	7,869.0	10,896.3	7,728.0	57.4	57.7	74.60	-2,644.6	-571.6		534.8	422.9	111.96	4.777	
11,100.0	7,869.0	10,996.3	7,727.4	59.2	59.5	74.55	-2,744.5	-571.6		534.9	419.5	115.44	4.634	
11,200.0	7,869.0	11,096.3	7,726.9	61.1	61.3	74.49	-2,844.5	-571.6		535.1	416.1	118.94	4.499	
11,300.0	7,869.0	11,196.3	7,726.4	62.9	63.1	74.44	-2,944.5	-571.6		535.2	412.8	122.44	4.371	
11,400.0	7,869.0	11,296.3	7,725.9	64.7	64.9	74.38	-3,044.5	-571.6		535.4	409.4	125.95	4.250	
11,500.0	7,869.0	11,396.3	7,725.4	66.5	66.7	74.33	-3,144.5	-571.6		535.5	406.0	129.48	4.136	
11,600.0	7,869.0	11,496.3	7,724.8	68.4	68.6	74.28	-3,244.5	-571.6		535.6	402.6	133.01	4.027	
11,700.0	7,869.0	11,596.3	7,724.3	70.2	70.4	74.22	-3,344.5	-571.6		535.8	399.2	136.54	3.924	
11,800.0	7,869.0	11,696.3	7,723.8	72.1	72.2	74.17	-3,444.5	-571.6		535.9	395.8	140.08	3.826	
11,900.0	7,869.0	11,796.3	7,723.3	73.9	74.1	74.11	-3,544.5	-571.6		536.1	392.4	143.63	3.732	
12,000.0	7,869.0	11,896.3	7,722.7	75.8	75.9	74.06	-3,644.5	-571.6		536.2	389.0	147.18	3.643	
12,100.0	7,869.0	11,996.3	7,722.2	77.6	77.8	74.01	-3,744.5	-571.6		536.4	385.6	150.74	3.558	
12,139.6	7,869.0	12,035.9	7,722.0	78.4	78.5	73.98	-3,784.2	-571.6		536.4	384.3	152.15	3.526 SF	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design		Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6J-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	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor			
0.0	0.0	0.0	0.0	0.0	0.0	83.26	3.6	30.8	31.0						
100.0	100.0	100.0	100.0	0.1	0.1	83.26	3.6	30.8	31.0	30.8	0.22	138.070			
200.0	200.0	200.0	200.0	0.3	0.3	83.26	3.6	30.8	31.0	30.4	0.67	46.023			
300.0	300.0	300.0	300.0	0.6	0.6	83.26	3.6	30.8	31.0	29.9	1.12	27.614			
400.0	400.0	400.0	400.0	0.8	0.8	83.26	3.6	30.8	31.0	29.5	1.57	19.724			
500.0	500.0	500.0	500.0	1.0	1.0	83.26	3.6	30.8	31.0	29.0	2.02	15.341			
600.0	600.0	600.0	600.0	1.2	1.2	83.26	3.6	30.8	31.0	28.6	2.47	12.552			
700.0	700.0	700.0	700.0	1.5	1.5	83.26	3.6	30.8	31.0	28.1	2.92	10.621			
800.0	800.0	800.0	800.0	1.7	1.7	83.26	3.6	30.8	31.0	27.7	3.37	9.205			
900.0	900.0	900.0	900.0	1.9	1.9	83.26	3.6	30.8	31.0	27.2	3.82	8.122			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	83.26	3.6	30.8	31.0	26.8	4.27	7.267			
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	83.26	3.6	30.8	31.0	26.3	4.72	6.575			
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	83.26	3.6	30.8	31.0	25.9	5.17	6.003	CC, ES		
1,300.0	1,300.0	1,299.6	1,299.6	2.8	2.8	81.13	4.9	31.2	31.6	26.0	5.62	5.628			
1,400.0	1,400.0	1,399.1	1,399.0	3.0	3.0	75.22	8.6	32.5	33.6	27.5	6.06	5.539			
1,500.0	1,500.0	1,498.4	1,498.1	3.3	3.3	66.93	14.7	34.5	37.5	31.0	6.51	5.767			
1,600.0	1,600.0	1,597.2	1,596.5	3.5	3.5	58.13	23.2	37.3	44.1	37.1	6.96	6.336			
1,700.0	1,700.0	1,695.6	1,694.2	3.7	3.7	55.49	34.1	41.0	52.9	45.5	7.41	7.131			
1,800.0	1,799.9	1,793.8	1,791.4	3.9	4.0	51.32	47.3	45.4	62.8	54.9	7.87	7.981			
1,900.0	1,899.7	1,892.5	1,888.8	4.2	4.3	49.05	62.7	50.5	73.1	64.8	8.32	8.786			
2,000.0	1,999.3	1,992.1	1,987.0	4.4	4.5	48.59	78.3	55.7	82.0	73.3	8.79	9.336			
2,100.0	2,098.6	2,091.9	2,085.4	4.6	4.9	49.49	94.0	60.9	89.2	80.0	9.26	9.632			
2,189.0	2,186.7	2,180.7	2,173.0	4.8	5.1	51.20	108.0	65.6	94.3	84.6	9.71	9.711			
2,200.0	2,197.5	2,191.7	2,183.8	4.9	5.2	51.47	109.8	66.2	94.8	85.1	9.77	9.710			
2,300.0	2,296.4	2,291.5	2,282.2	5.1	5.5	53.76	125.5	71.4	99.9	89.6	10.30	9.702			
2,400.0	2,395.2	2,391.3	2,380.6	5.4	5.8	55.82	141.2	76.6	105.1	94.3	10.85	9.692			
2,500.0	2,494.0	2,491.0	2,479.0	5.7	6.2	57.69	156.9	81.9	110.5	99.0	11.41	9.679			
2,600.0	2,592.8	2,590.8	2,577.4	6.0	6.5	59.39	172.6	87.1	115.9	103.9	11.99	9.665			
2,700.0	2,691.6	2,690.6	2,675.9	6.3	6.8	60.93	188.3	92.3	121.5	108.9	12.59	9.648			
2,800.0	2,790.4	2,790.4	2,774.3	6.6	7.2	62.33	204.0	97.6	127.1	113.9	13.19	9.631			
2,900.0	2,889.2	2,890.2	2,872.7	6.9	7.5	63.62	219.7	102.8	132.8	119.0	13.81	9.612			
3,000.0	2,988.0	2,990.0	2,971.1	7.2	7.9	64.80	235.5	108.0	138.5	124.1	14.44	9.593			
3,100.0	3,086.9	3,089.8	3,069.5	7.6	8.2	65.88	251.2	113.3	144.3	129.2	15.08	9.573			
3,200.0	3,185.7	3,189.6	3,167.9	7.9	8.6	66.88	266.9	118.5	150.2	134.5	15.72	9.553			
3,300.0	3,284.5	3,289.4	3,266.3	8.2	9.0	67.81	282.6	123.7	156.1	139.7	16.37	9.534			
3,400.0	3,383.3	3,389.2	3,364.7	8.5	9.3	68.67	298.3	129.0	162.0	145.0	17.03	9.515			
3,500.0	3,482.1	3,489.0	3,463.1	8.9	9.7	69.46	314.0	134.2	168.0	150.3	17.69	9.496			
3,600.0	3,580.9	3,588.8	3,561.6	9.2	10.0	70.21	329.7	139.5	174.0	155.6	18.36	9.478			
3,700.0	3,679.7	3,688.6	3,660.0	9.5	10.4	70.90	345.4	144.7	180.0	161.0	19.03	9.460			
3,800.0	3,778.6	3,788.4	3,758.4	9.9	10.8	71.55	361.1	149.9	186.0	166.3	19.70	9.443			
3,900.0	3,877.4	3,888.2	3,856.8	10.2	11.1	72.15	376.9	155.2	192.1	171.7	20.38	9.427			
4,000.0	3,976.2	3,988.0	3,955.2	10.6	11.5	72.72	392.6	160.4	198.2	177.1	21.06	9.411			
4,100.0	4,075.0	4,087.8	4,053.6	10.9	11.9	73.26	408.3	165.6	204.3	182.6	21.75	9.396			
4,200.0	4,173.8	4,187.6	4,152.0	11.2	12.2	73.76	424.0	170.9	210.4	188.0	22.43	9.381			
4,300.0	4,272.6	4,287.4	4,250.4	11.6	12.6	74.24	439.7	176.1	216.6	193.5	23.12	9.367			
4,400.0	4,371.4	4,387.2	4,348.9	11.9	13.0	74.69	455.4	181.3	222.7	198.9	23.81	9.354			
4,500.0	4,470.2	4,487.0	4,447.3	12.3	13.3	75.12	471.1	186.6	228.9	204.4	24.51	9.341			
4,600.0	4,569.1	4,586.8	4,545.7	12.6	13.7	75.52	486.8	191.8	235.1	209.9	25.20	9.329			
4,700.0	4,667.9	4,686.5	4,644.1	13.0	14.1	75.90	502.6	197.0	241.3	215.4	25.90	9.317			
4,800.0	4,766.7	4,786.3	4,742.5	13.3	14.4	76.27	518.3	202.3	247.5	220.9	26.59	9.306			
4,900.0	4,865.5	4,886.1	4,840.9	13.7	14.8	76.61	534.0	207.5	253.7	226.4	27.29	9.295			

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6J-203 - Wellbore #1 - Plan #1 (4-29-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference				Offset			Semi Major Axis		Distance				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,964.3	4,985.9	4,939.3	14.0	15.2	76.94	549.7	212.7	259.9	231.9	27.99	9.285	
5,100.0	5,063.1	5,085.7	5,037.7	14.4	15.6	77.25	565.4	218.0	266.1	237.5	28.70	9.275	
5,200.0	5,161.9	5,185.5	5,136.1	14.7	15.9	77.55	581.1	223.2	272.4	243.0	29.40	9.266	
5,300.0	5,260.8	5,285.3	5,234.6	15.1	16.3	77.84	596.8	228.4	278.6	248.5	30.10	9.256	
5,400.0	5,359.6	5,385.1	5,333.0	15.4	16.7	78.11	612.5	233.7	284.9	254.1	30.81	9.248	
5,500.0	5,458.4	5,484.9	5,431.4	15.8	17.0	78.37	628.2	238.9	291.1	259.6	31.51	9.239	
5,600.0	5,557.2	5,584.7	5,529.8	16.1	17.4	78.62	644.0	244.1	297.4	265.2	32.22	9.231	
5,700.0	5,656.0	5,684.5	5,628.2	16.5	17.8	78.87	659.7	249.4	303.7	270.7	32.92	9.223	
5,800.0	5,754.8	5,784.3	5,726.6	16.8	18.2	79.10	675.4	254.6	309.9	276.3	33.63	9.216	
5,900.0	5,853.6	5,884.1	5,825.0	17.2	18.5	79.32	691.1	259.8	316.2	281.9	34.34	9.209	
6,000.0	5,952.5	5,983.9	5,923.4	17.5	18.9	79.53	706.8	265.1	322.5	287.4	35.05	9.202	
6,100.0	6,051.3	6,083.7	6,021.9	17.9	19.3	79.73	722.5	270.3	328.8	293.0	35.76	9.195	
6,200.0	6,150.1	6,189.9	6,126.9	18.2	19.6	80.21	737.5	275.3	334.1	297.7	36.43	9.172	
6,300.0	6,248.9	6,296.3	6,232.6	18.6	19.8	81.25	748.8	279.1	337.6	300.5	37.12	9.094	
6,400.0	6,347.7	6,402.2	6,338.2	18.9	20.1	82.83	756.3	281.6	339.3	301.4	37.82	8.971	
6,500.0	6,446.5	6,507.5	6,443.4	19.3	20.2	84.95	760.1	282.8	339.5	300.9	38.51	8.814	
6,600.0	6,545.3	6,609.4	6,545.3	19.7	20.4	87.51	760.6	283.0	338.7	299.5	39.19	8.641	
6,614.8	6,560.0	6,624.1	6,560.0	19.7	20.4	87.89	760.6	283.0	338.6	299.3	39.29	8.617	
6,700.0	6,644.3	6,708.4	6,644.3	20.0	20.5	89.87	760.6	283.0	338.4	298.6	39.80	8.501	
6,706.4	6,650.7	6,714.8	6,650.7	20.0	20.5	90.00	760.6	283.0	338.4	298.5	39.83	8.494	
6,800.0	6,743.8	6,807.8	6,743.8	20.2	20.7	91.67	760.6	283.0	338.5	298.2	40.29	8.402	
6,900.0	6,843.5	6,907.6	6,843.5	20.4	20.8	92.89	760.6	283.0	338.8	298.1	40.70	8.323	
7,000.0	6,943.4	7,007.6	6,943.6	20.6	21.0	93.63	760.0	283.0	339.0	297.9	41.05	8.258	
7,056.6	7,000.0	7,064.1	6,999.8	20.7	21.0	90.23	755.6	283.0	339.0	297.8	41.19	8.230	
7,100.0	7,043.4	7,106.8	7,042.1	20.7	21.0	91.26	749.5	283.0	339.1	297.8	41.28	8.214	
7,161.6	7,105.1	7,166.1	7,100.0	20.8	21.0	93.34	737.2	283.0	339.6	298.2	41.39	8.205	
7,200.0	7,143.4	7,202.1	7,134.7	20.9	20.9	-85.13	727.6	283.0	340.3	298.9	41.42	8.217	
7,250.0	7,193.2	7,248.4	7,178.7	20.9	20.8	-83.18	712.7	283.0	341.6	300.2	41.37	8.256	
7,300.0	7,242.7	7,294.2	7,221.0	20.9	20.7	-81.27	695.5	283.0	343.2	302.0	41.25	8.320	
7,350.0	7,291.5	7,339.3	7,261.8	20.9	20.6	-79.42	676.1	283.0	345.2	304.1	41.06	8.407	
7,400.0	7,339.6	7,384.0	7,300.8	20.8	20.5	-77.64	654.5	283.0	347.5	306.7	40.79	8.518	
7,450.0	7,386.6	7,428.1	7,338.1	20.7	20.4	-75.93	631.0	283.0	350.0	309.5	40.46	8.650	
7,500.0	7,432.5	7,471.7	7,373.7	20.6	20.2	-74.29	605.7	283.0	352.7	312.7	40.07	8.803	
7,550.0	7,476.9	7,514.9	7,407.3	20.4	20.1	-72.75	578.6	283.0	355.6	316.0	39.62	8.976	
7,600.0	7,519.7	7,557.7	7,439.2	20.3	19.9	-71.29	550.0	283.0	358.6	319.5	39.12	9.167	
7,650.0	7,560.8	7,600.0	7,469.0	20.1	19.7	-69.92	520.0	283.0	361.6	323.1	38.58	9.374	
7,700.0	7,599.9	7,642.2	7,497.0	20.0	19.6	-68.63	488.5	283.0	364.7	326.7	38.02	9.594	
7,750.0	7,636.9	7,684.0	7,523.0	19.8	19.4	-67.45	455.8	283.0	367.8	330.3	37.43	9.824	
7,800.0	7,671.7	7,725.5	7,547.0	19.6	19.3	-66.35	421.9	283.0	370.7	333.9	36.85	10.060	
7,850.0	7,704.0	7,766.7	7,569.1	19.5	19.2	-65.35	387.1	283.0	373.6	337.3	36.28	10.297	
7,900.0	7,733.7	7,807.7	7,589.0	19.3	19.0	-64.44	351.3	283.0	376.3	340.6	35.74	10.529	
7,950.0	7,760.7	7,850.0	7,607.6	19.2	18.9	-63.61	313.3	283.0	378.8	343.6	35.23	10.752	
8,000.0	7,785.0	7,889.1	7,622.9	19.1	18.8	-62.91	277.3	283.0	381.2	346.4	34.81	10.951	
8,050.0	7,806.3	7,929.5	7,636.8	19.0	18.8	-62.28	239.3	283.0	383.3	348.8	34.45	11.127	
8,100.0	7,824.6	7,969.9	7,648.6	18.9	18.7	-61.74	200.8	283.0	385.1	350.9	34.18	11.269	
8,150.0	7,839.9	8,010.0	7,658.3	18.9	18.7	-61.29	161.8	283.0	386.7	352.7	34.01	11.371	
8,200.0	7,852.0	8,050.0	7,665.9	18.9	18.7	-60.94	122.6	283.0	388.0	354.0	33.95	11.428	
8,250.0	7,860.9	8,090.2	7,671.5	19.0	18.7	-60.67	82.8	283.0	388.9	354.9	34.01	11.436	
8,300.0	7,866.5	8,130.1	7,674.9	19.1	18.8	-60.49	43.0	283.0	389.6	355.4	34.19	11.394	
8,350.0	7,868.9	8,170.1	7,676.3	19.3	18.9	-60.40	3.1	283.0	389.9	355.4	34.49	11.305	
8,361.6	7,869.0	8,179.4	7,676.3	19.3	18.9	-60.39	-6.2	283.0	389.9	355.4	34.58	11.278	

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6J-443	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								
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		
8,400.0	7,869.0	8,215.5	7,675.8	19.5	19.0	-60.33	-42.4	283.0	390.2	355.3	34.87	11.190			
8,500.0	7,869.0	8,315.5	7,674.3	20.0	19.6	-60.13	-142.3	283.0	391.0	355.1	35.84	10.908			
8,600.0	7,869.0	8,415.5	7,672.8	20.7	20.3	-59.94	-242.3	283.0	391.7	354.6	37.09	10.560			
8,700.0	7,869.0	8,515.5	7,671.3	21.5	21.1	-59.75	-342.3	283.0	392.5	353.9	38.60	10.168			
8,800.0	7,869.0	8,615.5	7,669.8	22.5	22.1	-59.56	-442.3	283.0	393.2	352.9	40.33	9.751			
8,900.0	7,869.0	8,715.5	7,668.2	23.6	23.3	-59.37	-542.2	283.0	394.0	351.8	42.25	9.326			
9,000.0	7,869.0	8,815.5	7,666.7	24.8	24.5	-59.18	-642.2	283.0	394.8	350.5	44.33	8.905			
9,100.0	7,869.0	8,915.5	7,665.2	26.0	25.8	-58.99	-742.2	283.0	395.6	349.0	46.56	8.496			
9,200.0	7,869.0	9,015.4	7,663.7	27.4	27.1	-58.80	-842.2	283.0	396.4	347.5	48.90	8.105			
9,300.0	7,869.0	9,115.4	7,662.2	28.8	28.6	-58.61	-942.2	283.0	397.2	345.8	51.35	7.735			
9,400.0	7,869.0	9,215.4	7,660.7	30.3	30.0	-58.43	-1,042.1	283.0	397.9	344.1	53.87	7.387			
9,500.0	7,869.0	9,315.4	7,659.1	31.8	31.6	-58.24	-1,142.1	283.0	398.7	342.3	56.47	7.061			
9,600.0	7,869.0	9,415.4	7,657.6	33.3	33.1	-58.06	-1,242.1	283.0	399.5	340.4	59.13	6.757			
9,700.0	7,869.0	9,515.4	7,656.1	34.9	34.7	-57.87	-1,342.1	283.0	400.4	338.5	61.85	6.473			
9,800.0	7,869.0	9,615.4	7,654.6	36.5	36.4	-57.69	-1,442.0	283.0	401.2	336.6	64.60	6.210			
9,900.0	7,869.0	9,715.4	7,653.1	38.2	38.0	-57.51	-1,542.0	283.0	402.0	334.6	67.39	5.965			
10,000.0	7,869.0	9,815.4	7,651.5	39.9	39.7	-57.32	-1,642.0	283.0	402.8	332.6	70.21	5.737			
10,100.0	7,869.0	9,915.3	7,650.0	41.6	41.4	-57.14	-1,742.0	283.0	403.6	330.6	73.05	5.525			
10,200.0	7,869.0	10,015.3	7,648.5	43.3	43.1	-56.96	-1,841.9	283.0	404.4	328.5	75.92	5.327			
10,300.0	7,869.0	10,115.3	7,647.0	45.0	44.8	-56.78	-1,941.9	283.0	405.3	326.5	78.80	5.143			
10,400.0	7,869.0	10,215.3	7,645.5	46.7	46.6	-56.60	-2,041.9	283.0	406.1	324.4	81.70	4.971			
10,500.0	7,869.0	10,315.3	7,644.0	48.5	48.3	-56.42	-2,141.9	283.0	406.9	322.3	84.61	4.810			
10,600.0	7,869.0	10,415.3	7,642.4	50.3	50.1	-56.25	-2,241.9	283.0	407.8	320.3	87.52	4.659			
10,700.0	7,869.0	10,515.3	7,640.9	52.0	51.9	-56.07	-2,341.8	283.0	408.6	318.2	90.45	4.518			
10,800.0	7,869.0	10,615.3	7,639.4	53.8	53.7	-55.89	-2,441.8	283.0	409.5	316.1	93.38	4.385			
10,900.0	7,869.0	10,715.2	7,637.9	55.6	55.5	-55.72	-2,541.8	283.0	410.3	314.0	96.31	4.261			
11,000.0	7,869.0	10,815.2	7,636.4	57.4	57.3	-55.54	-2,641.8	283.0	411.2	312.0	99.25	4.143			
11,100.0	7,869.0	10,915.2	7,634.8	59.2	59.1	-55.37	-2,741.7	283.0	412.1	309.9	102.19	4.032			
11,200.0	7,869.0	11,015.2	7,633.3	61.1	60.9	-55.20	-2,841.7	283.0	412.9	307.8	105.12	3.928			
11,300.0	7,869.0	11,115.2	7,631.8	62.9	62.7	-55.02	-2,941.7	283.0	413.8	305.7	108.06	3.829			
11,400.0	7,869.0	11,215.2	7,630.3	64.7	64.6	-54.85	-3,041.7	283.0	414.7	303.7	111.00	3.736			
11,500.0	7,869.0	11,315.2	7,628.8	66.5	66.4	-54.68	-3,141.6	283.0	415.5	301.6	113.93	3.647			
11,600.0	7,869.0	11,415.2	7,627.3	68.4	68.2	-54.51	-3,241.6	283.0	416.4	299.6	116.86	3.563			
11,700.0	7,869.0	11,515.2	7,625.7	70.2	70.1	-54.34	-3,341.6	283.0	417.3	297.5	119.79	3.484			
11,800.0	7,869.0	11,615.1	7,624.2	72.1	71.9	-54.17	-3,441.6	283.0	418.2	295.5	122.71	3.408			
11,900.0	7,869.0	11,715.1	7,622.7	73.9	73.8	-54.00	-3,541.6	283.0	419.1	293.5	125.63	3.336			
12,000.0	7,869.0	11,815.1	7,621.2	75.8	75.6	-53.84	-3,641.5	283.0	420.0	291.4	128.54	3.267			
12,100.0	7,869.0	11,915.1	7,619.7	77.6	77.5	-53.67	-3,741.5	283.0	420.9	289.4	131.45	3.202			
12,139.6	7,869.0	11,954.7	7,619.1	78.4	78.2	-53.60	-3,781.1	283.0	421.2	288.6	132.60	3.177 SF			

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6J-443	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-303 - 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	86.62	3.6	61.6	61.8				
100.0	100.0	99.0	99.0	0.1	0.1	86.62	3.6	61.6	61.7	61.5	0.22	276.087	
200.0	200.0	199.0	199.0	0.3	0.3	86.62	3.6	61.6	61.7	61.1	0.67	91.876	
300.0	300.0	299.0	299.0	0.6	0.6	86.62	3.6	61.6	61.7	60.6	1.12	55.052	
400.0	400.0	399.0	399.0	0.8	0.8	86.62	3.6	61.6	61.7	60.2	1.57	39.300	
500.0	500.0	499.0	499.0	1.0	1.0	86.62	3.6	61.6	61.7	59.7	2.02	30.557	
600.0	600.0	599.0	599.0	1.2	1.2	86.62	3.6	61.6	61.7	59.3	2.47	24.996	
700.0	700.0	699.0	699.0	1.5	1.5	86.62	3.6	61.6	61.7	58.8	2.92	21.148	
800.0	800.0	799.0	799.0	1.7	1.7	86.62	3.6	61.6	61.7	58.4	3.37	18.326 CC, ES	
900.0	900.0	898.0	898.0	1.9	1.9	85.73	4.7	62.4	62.6	58.8	3.81	16.407	
1,000.0	1,000.0	996.8	996.7	2.1	2.1	83.19	7.7	64.6	65.1	60.9	4.26	15.306	
1,100.0	1,100.0	1,095.4	1,095.1	2.4	2.3	79.38	12.8	68.4	69.7	65.0	4.70	14.827	
1,200.0	1,200.0	1,193.5	1,192.8	2.6	2.6	74.84	19.9	73.6	76.6	71.4	5.15	14.860	
1,300.0	1,300.0	1,291.2	1,289.8	2.8	2.8	70.13	29.0	80.3	85.9	80.3	5.61	15.327	
1,400.0	1,400.0	1,388.2	1,385.9	3.0	3.1	65.65	40.0	88.4	98.0	91.9	6.06	16.156	
1,500.0	1,500.0	1,484.4	1,480.8	3.3	3.4	61.63	52.9	97.9	112.8	106.2	6.52	17.282	
1,600.0	1,600.0	1,579.8	1,574.4	3.5	3.7	58.15	67.5	108.7	130.3	123.3	6.99	18.647	
1,700.0	1,700.0	1,677.7	1,670.3	3.7	4.0	59.68	83.6	120.5	148.8	141.4	7.44	20.002	
1,800.0	1,799.9	1,776.2	1,766.6	3.9	4.4	58.32	99.8	132.4	166.2	158.3	7.91	21.024	
1,900.0	1,899.7	1,874.9	1,863.2	4.2	4.8	57.89	116.0	144.4	182.3	173.9	8.38	21.754	
2,000.0	1,999.3	1,973.8	1,960.1	4.4	5.2	58.17	132.2	156.4	197.0	188.1	8.86	22.220	
2,100.0	2,098.6	2,072.8	2,057.0	4.6	5.6	59.01	148.5	168.3	210.3	201.0	9.37	22.456	
2,189.0	2,186.7	2,161.0	2,143.4	4.8	5.9	60.17	163.0	179.0	221.2	211.3	9.83	22.494	
2,200.0	2,197.5	2,171.9	2,154.0	4.9	6.0	60.35	164.8	180.3	222.5	212.6	9.89	22.488	
2,300.0	2,296.4	2,271.0	2,251.1	5.1	6.4	61.89	181.1	192.3	234.2	223.8	10.45	22.425	
2,400.0	2,395.2	2,370.1	2,348.1	5.4	6.8	63.29	197.3	204.3	246.2	235.2	11.02	22.349	
2,500.0	2,494.0	2,469.2	2,445.1	5.7	7.2	64.56	213.6	216.3	258.3	246.7	11.60	22.262	
2,600.0	2,592.8	2,568.3	2,542.1	6.0	7.6	65.71	229.9	228.3	270.4	258.2	12.20	22.169	
2,700.0	2,691.6	2,667.5	2,639.2	6.3	8.0	66.77	246.2	240.3	282.7	269.9	12.81	22.071	
2,800.0	2,790.4	2,766.6	2,736.2	6.6	8.5	67.74	262.5	252.3	295.1	281.7	13.43	21.971	
2,900.0	2,889.2	2,865.7	2,833.2	6.9	8.9	68.63	278.8	264.3	307.5	293.5	14.06	21.871	
3,000.0	2,988.0	2,964.8	2,930.3	7.2	9.3	69.45	295.0	276.3	320.0	305.3	14.70	21.771	
3,100.0	3,086.9	3,063.9	3,027.3	7.6	9.7	70.21	311.3	288.3	332.6	317.3	15.35	21.673	
3,200.0	3,185.7	3,163.0	3,124.3	7.9	10.2	70.91	327.6	300.3	345.2	329.2	16.00	21.577	
3,300.0	3,284.5	3,262.1	3,221.3	8.2	10.6	71.56	343.9	312.3	357.9	341.3	16.66	21.484	
3,400.0	3,383.3	3,361.3	3,318.4	8.5	11.0	72.17	360.2	324.3	370.6	353.3	17.32	21.394	
3,500.0	3,482.1	3,460.4	3,415.4	8.9	11.4	72.74	376.5	336.3	383.4	365.4	17.99	21.307	
3,600.0	3,580.9	3,559.5	3,512.4	9.2	11.9	73.27	392.7	348.3	396.2	377.5	18.67	21.223	
3,700.0	3,679.7	3,658.6	3,609.5	9.5	12.3	73.77	409.0	360.3	409.0	389.7	19.35	21.142	
3,800.0	3,778.6	3,757.7	3,706.5	9.9	12.7	74.24	425.3	372.3	421.8	401.8	20.03	21.065	
3,900.0	3,877.4	3,856.8	3,803.5	10.2	13.2	74.68	441.6	384.2	434.7	414.0	20.71	20.990	
4,000.0	3,976.2	3,955.9	3,900.5	10.6	13.6	75.10	457.9	396.2	447.6	426.2	21.40	20.919	
4,100.0	4,075.0	4,055.1	3,997.6	10.9	14.0	75.49	474.2	408.2	460.5	438.5	22.09	20.851	
4,200.0	4,173.8	4,154.2	4,094.6	11.2	14.5	75.86	490.5	420.2	473.5	450.7	22.78	20.785	
4,300.0	4,272.6	4,253.3	4,191.6	11.6	14.9	76.21	506.7	432.2	486.4	463.0	23.47	20.723	
4,400.0	4,371.4	4,352.4	4,288.7	11.9	15.3	76.54	523.0	444.2	499.4	475.2	24.17	20.662	
4,500.0	4,470.2	4,451.5	4,385.7	12.3	15.7	76.86	539.3	456.2	512.4	487.5	24.87	20.605	
4,600.0	4,569.1	4,550.6	4,482.7	12.6	16.2	77.16	555.6	468.2	525.4	499.9	25.57	20.550	
4,700.0	4,667.9	4,649.7	4,579.7	13.0	16.6	77.44	571.9	480.2	538.4	512.2	26.27	20.497	
4,800.0	4,766.7	4,748.9	4,676.8	13.3	17.0	77.72	588.2	492.2	551.5	524.5	26.97	20.446	
4,900.0	4,865.5	4,848.0	4,773.8	13.7	17.5	77.98	604.4	504.2	564.5	536.8	27.68	20.397	

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 6J-303 - Wellbore #1 - Plan #1 (4-29-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference				Offset			Semi Major Axis		Distance				
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	4,964.3	4,947.1	4,870.8	14.0	17.9	78.22	620.7	516.2	577.6	549.2	28.38	20.350	
5,100.0	5,063.1	5,046.2	4,967.9	14.4	18.3	78.46	637.0	528.2	590.6	561.6	29.09	20.305	
5,200.0	5,161.9	5,145.3	5,064.9	14.7	18.8	78.69	653.3	540.2	603.7	573.9	29.80	20.262	
5,300.0	5,260.8	5,244.4	5,161.9	15.1	19.2	78.91	669.6	552.2	616.8	586.3	30.50	20.220	
5,400.0	5,359.6	5,343.5	5,258.9	15.4	19.6	79.11	685.9	564.2	629.9	598.7	31.21	20.180	
5,500.0	5,458.4	5,442.6	5,356.0	15.8	20.1	79.31	702.1	576.2	643.0	611.1	31.92	20.142	
5,600.0	5,557.2	5,550.0	5,461.1	16.1	20.5	79.54	719.5	588.9	655.9	623.2	32.65	20.089	
5,700.0	5,656.0	5,670.8	5,580.2	16.5	20.9	80.01	735.7	600.9	666.1	632.8	33.38	19.956	
5,800.0	5,754.8	5,791.9	5,700.3	16.8	21.2	80.75	748.0	609.9	673.2	639.1	34.10	19.741	
5,900.0	5,853.6	5,912.9	5,820.9	17.2	21.5	81.75	756.1	615.9	677.3	642.4	34.82	19.449	
6,000.0	5,952.5	6,033.3	5,941.2	17.5	21.7	83.02	760.2	618.9	678.3	642.8	35.54	19.087	
6,100.0	6,051.3	6,142.4	6,050.3	17.9	21.8	84.40	760.6	619.3	677.0	640.8	36.23	18.686	
6,200.0	6,150.1	6,241.2	6,149.1	18.2	21.9	85.68	760.6	619.3	675.7	638.8	36.89	18.313	
6,300.0	6,248.9	6,340.0	6,247.9	18.6	22.1	86.96	760.6	619.3	674.7	637.1	37.56	17.964	
6,400.0	6,347.7	6,438.8	6,346.7	18.9	22.2	88.25	760.6	619.3	674.0	635.8	38.21	17.639	
6,500.0	6,446.5	6,537.6	6,445.5	19.3	22.3	89.54	760.6	619.3	673.7	634.8	38.86	17.336	
6,535.5	6,481.6	6,572.7	6,480.6	19.4	22.4	90.00	760.6	619.3	673.7	634.6	39.09	17.233	
6,600.0	6,545.3	6,636.4	6,544.3	19.7	22.5	90.83	760.6	619.3	673.8	634.3	39.51	17.054	
6,614.8	6,560.0	6,651.1	6,559.0	19.7	22.5	91.02	760.6	619.3	673.8	634.2	39.60	17.014	
6,700.0	6,644.3	6,735.4	6,643.3	20.0	22.6	92.03	760.6	619.3	674.1	634.0	40.10	16.813	
6,800.0	6,743.8	6,834.8	6,742.8	20.2	22.7	92.94	760.6	619.3	674.6	634.0	40.58	16.624	
6,900.0	6,843.5	6,934.6	6,842.5	20.4	22.9	93.55	760.6	619.3	675.0	634.0	41.00	16.463	
7,000.0	6,943.4	7,034.5	6,942.4	20.6	23.0	93.87	760.6	619.3	675.2	633.9	41.36	16.327	
7,056.6	7,000.0	7,091.2	6,999.1	20.7	23.1	89.72	760.3	619.3	675.3	633.7	41.53	16.261	
7,100.0	7,043.4	7,134.7	7,042.5	20.7	23.1	89.92	757.9	619.3	675.3	633.6	41.64	16.215	
7,110.0	7,053.4	7,144.6	7,052.4	20.7	23.1	90.00	757.0	619.3	675.3	633.6	41.67	16.204	
7,161.6	7,105.1	7,195.6	7,102.9	20.8	23.1	90.57	750.3	619.3	675.3	633.5	41.81	16.152	
7,200.0	7,143.4	7,233.0	7,139.6	20.9	23.1	-88.91	743.3	619.3	675.4	633.5	41.88	16.126	
7,250.0	7,193.2	7,281.2	7,186.5	20.9	23.1	-88.23	731.6	619.3	675.6	633.7	41.91	16.119	
7,300.0	7,242.7	7,329.0	7,232.0	20.9	23.0	-87.57	717.1	619.3	675.9	634.0	41.88	16.137	
7,350.0	7,291.5	7,376.4	7,276.1	20.9	22.9	-86.92	700.0	619.3	676.3	634.5	41.79	16.181	
7,400.0	7,339.6	7,423.3	7,318.7	20.8	22.8	-86.28	680.4	619.3	676.7	635.1	41.65	16.248	
7,450.0	7,386.6	7,469.8	7,359.7	20.7	22.7	-85.66	658.4	619.3	677.2	635.8	41.45	16.338	
7,500.0	7,432.5	7,516.0	7,399.0	20.6	22.5	-85.06	634.1	619.3	677.8	636.6	41.21	16.448	
7,550.0	7,476.9	7,561.7	7,436.4	20.4	22.4	-84.48	607.7	619.3	678.5	637.5	40.93	16.578	
7,600.0	7,519.7	7,607.2	7,471.9	20.3	22.2	-83.93	579.4	619.3	679.1	638.5	40.61	16.724	
7,650.0	7,560.8	7,650.0	7,503.8	20.1	22.1	-83.42	550.8	619.3	679.8	639.6	40.28	16.880	
7,700.0	7,599.9	7,697.2	7,536.9	20.0	21.9	-82.90	517.3	619.3	680.6	640.7	39.91	17.053	
7,750.0	7,636.9	7,741.7	7,566.3	19.8	21.7	-82.42	483.8	619.3	681.3	641.7	39.54	17.230	
7,800.0	7,671.7	7,786.1	7,593.6	19.6	21.5	-81.98	448.9	619.3	682.0	642.8	39.18	17.408	
7,850.0	7,704.0	7,830.2	7,618.7	19.5	21.4	-81.57	412.6	619.3	682.7	643.9	38.83	17.583	
7,900.0	7,733.7	7,874.1	7,641.5	19.3	21.2	-81.19	375.1	619.3	683.4	644.9	38.50	17.750	
7,950.0	7,760.7	7,917.8	7,662.0	19.2	21.0	-80.85	336.5	619.3	684.0	645.8	38.21	17.902	
8,000.0	7,785.0	7,961.3	7,680.3	19.1	20.8	-80.54	297.0	619.3	684.6	646.7	37.96	18.035	
8,050.0	7,806.3	8,004.7	7,696.2	19.0	20.7	-80.27	256.7	619.3	685.2	647.4	37.77	18.141	
8,100.0	7,824.6	8,050.0	7,710.3	18.9	20.5	-80.02	213.6	619.3	685.6	648.0	37.64	18.217	
8,150.0	7,839.9	8,091.1	7,721.0	18.9	20.4	-79.83	173.9	619.3	686.1	648.5	37.59	18.252	
8,200.0	7,852.0	8,134.2	7,729.8	18.9	20.2	-79.67	131.7	619.3	686.4	648.8	37.61	18.250	
8,250.0	7,860.9	8,177.2	7,736.2	19.0	20.1	-79.55	89.2	619.3	686.7	649.0	37.72	18.206	
8,300.0	7,866.5	8,220.1	7,740.2	19.1	20.0	-79.46	46.5	619.3	686.9	648.9	37.91	18.120	
8,350.0	7,868.9	8,263.1	7,741.8	19.3	19.9	-79.42	3.6	619.3	687.0	648.8	38.18	17.995	

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6J-303 - Wellbore #1 - Plan #1 (4-29-15)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
8,361.6	7,869.0	8,273.9	7,741.8	19.3	19.8	-79.41	-7.3	619.3	687.0	648.7	38.25	17.958					
8,362.0	7,869.0	8,273.9	7,741.8	19.3	19.8	-79.41	-7.3	619.3	687.0	648.7	38.25	17.958					
8,400.0	7,869.0	8,311.3	7,741.6	19.5	19.7	-79.40	-44.6	619.3	687.0	648.4	38.56	17.817					
8,500.0	7,869.0	8,411.3	7,741.1	20.0	19.9	-79.35	-144.6	619.3	687.1	647.5	39.58	17.358					
8,600.0	7,869.0	8,511.3	7,740.5	20.7	20.7	-79.31	-244.6	619.3	687.2	646.3	40.93	16.789					
8,700.0	7,869.0	8,611.3	7,740.0	21.5	21.6	-79.27	-344.6	619.3	687.3	644.7	42.57	16.145					
8,800.0	7,869.0	8,711.3	7,739.5	22.5	22.7	-79.23	-444.6	619.3	687.4	642.9	44.47	15.458					
8,900.0	7,869.0	8,811.3	7,739.0	23.6	23.8	-79.18	-544.6	619.3	687.5	640.9	46.60	14.754					
9,000.0	7,869.0	8,911.3	7,738.4	24.8	25.0	-79.14	-644.6	619.3	687.6	638.7	48.92	14.055					
9,100.0	7,869.0	9,011.3	7,737.9	26.0	26.3	-79.10	-744.6	619.3	687.7	636.3	51.42	13.374					
9,200.0	7,869.0	9,111.3	7,737.4	27.4	27.7	-79.05	-844.6	619.3	687.8	633.7	54.06	12.722					
9,300.0	7,869.0	9,211.3	7,736.9	28.8	29.1	-79.01	-944.6	619.3	687.9	631.1	56.83	12.104					
9,400.0	7,869.0	9,311.3	7,736.3	30.3	30.6	-78.97	-1,044.6	619.3	688.0	628.3	59.71	11.522					
9,500.0	7,869.0	9,411.3	7,735.8	31.8	32.1	-78.93	-1,144.6	619.3	688.1	625.4	62.68	10.978					
9,600.0	7,869.0	9,511.3	7,735.3	33.3	33.6	-78.88	-1,244.6	619.3	688.2	622.5	65.73	10.469					
9,700.0	7,869.0	9,611.3	7,734.8	34.9	35.2	-78.84	-1,344.6	619.3	688.3	619.4	68.86	9.996					
9,800.0	7,869.0	9,711.3	7,734.3	36.5	36.8	-78.80	-1,444.6	619.3	688.4	616.4	72.04	9.556					
9,900.0	7,869.0	9,811.2	7,733.7	38.2	38.4	-78.75	-1,544.6	619.3	688.5	613.2	75.27	9.147					
10,000.0	7,869.0	9,911.2	7,733.2	39.9	40.1	-78.71	-1,644.6	619.3	688.6	610.1	78.56	8.766					
10,100.0	7,869.0	10,011.2	7,732.7	41.6	41.8	-78.67	-1,744.6	619.3	688.7	606.8	81.88	8.411					
10,200.0	7,869.0	10,111.2	7,732.2	43.3	43.5	-78.63	-1,844.6	619.3	688.8	603.6	85.24	8.081					
10,300.0	7,869.0	10,211.2	7,731.6	45.0	45.2	-78.58	-1,944.6	619.3	688.9	600.3	88.62	7.774					
10,400.0	7,869.0	10,311.2	7,731.1	46.7	46.9	-78.54	-2,044.6	619.3	689.0	597.0	92.04	7.486					
10,500.0	7,869.0	10,411.2	7,730.6	48.5	48.7	-78.50	-2,144.6	619.3	689.1	593.7	95.48	7.217					
10,600.0	7,869.0	10,511.2	7,730.1	50.3	50.4	-78.46	-2,244.6	619.3	689.2	590.3	98.94	6.966					
10,700.0	7,869.0	10,611.2	7,729.5	52.0	52.2	-78.41	-2,344.6	619.3	689.3	586.9	102.43	6.730					
10,800.0	7,869.0	10,711.2	7,729.0	53.8	54.0	-78.37	-2,444.6	619.3	689.5	583.5	105.93	6.509					
10,900.0	7,869.0	10,811.2	7,728.5	55.6	55.7	-78.33	-2,544.6	619.3	689.6	580.1	109.44	6.301					
11,000.0	7,869.0	10,911.2	7,728.0	57.4	57.5	-78.29	-2,644.6	619.3	689.7	576.7	112.97	6.105					
11,100.0	7,869.0	11,011.2	7,727.4	59.2	59.3	-78.24	-2,744.6	619.3	689.8	573.3	116.52	5.920					
11,200.0	7,869.0	11,111.2	7,726.9	61.1	61.1	-78.20	-2,844.6	619.3	689.9	569.8	120.07	5.746					
11,300.0	7,869.0	11,211.2	7,726.4	62.9	63.0	-78.16	-2,944.6	619.3	690.0	566.4	123.64	5.581					
11,400.0	7,869.0	11,311.2	7,725.9	64.7	64.8	-78.12	-3,044.5	619.3	690.1	562.9	127.21	5.425					
11,500.0	7,869.0	11,411.2	7,725.4	66.5	66.6	-78.07	-3,144.5	619.3	690.2	559.4	130.79	5.277					
11,600.0	7,869.0	11,511.2	7,724.8	68.4	68.4	-78.03	-3,244.5	619.3	690.3	555.9	134.39	5.137					
11,700.0	7,869.0	11,611.2	7,724.3	70.2	70.3	-77.99	-3,344.5	619.3	690.4	552.4	137.98	5.004					
11,800.0	7,869.0	11,711.2	7,723.8	72.1	72.1	-77.95	-3,444.5	619.3	690.5	549.0	141.59	4.877					
11,900.0	7,869.0	11,811.2	7,723.3	73.9	73.9	-77.90	-3,544.5	619.3	690.7	545.5	145.20	4.757					
12,000.0	7,869.0	11,911.2	7,722.7	75.8	75.8	-77.86	-3,644.5	619.3	690.8	541.9	148.82	4.642					
12,100.0	7,869.0	12,011.2	7,722.2	77.6	77.6	-77.82	-3,744.5	619.3	690.9	538.4	152.44	4.532					
12,139.6	7,869.0	12,050.9	7,722.0	78.4	78.4	-77.80	-3,784.2	619.3	690.9	537.0	153.87	4.490 SF					

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6J-443	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							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
9,800.0	7,869.0	7,873.7	7,871.8	36.5	15.7	87.91	-2,417.7	-281.8	998.3	946.1	52.26	19.105		
9,900.0	7,869.0	7,874.4	7,872.5	38.2	15.8	88.10	-2,417.8	-281.8	901.2	847.3	53.91	16.717		
10,000.0	7,869.0	7,875.2	7,873.3	39.9	15.8	88.29	-2,417.8	-281.8	804.8	749.2	55.59	14.478		
10,100.0	7,869.0	7,875.9	7,874.0	41.6	15.8	88.48	-2,417.8	-281.8	709.4	652.1	57.29	12.383		
10,200.0	7,869.0	7,876.7	7,874.8	43.3	15.8	88.68	-2,417.8	-281.8	615.4	556.4	59.00	10.430		
10,300.0	7,869.0	7,877.4	7,875.5	45.0	15.8	88.87	-2,417.8	-281.8	523.7	462.9	60.74	8.622		
10,400.0	7,869.0	7,878.2	7,876.3	46.7	15.8	89.06	-2,417.8	-281.8	435.6	373.1	62.48	6.971		
10,500.0	7,869.0	7,878.9	7,877.0	48.5	15.8	89.25	-2,417.8	-281.8	353.9	289.6	64.24	5.509		
10,600.0	7,869.0	7,879.7	7,877.8	50.3	15.8	89.44	-2,417.8	-281.8	284.1	218.1	66.01	4.304		
10,700.0	7,869.0	7,880.4	7,878.5	52.0	15.8	89.63	-2,417.8	-281.8	237.1	169.3	67.79	3.498		
10,772.5	7,869.0	7,881.0	7,879.1	53.3	15.8	89.76	-2,417.8	-281.8	225.8	156.7	69.09	3.268 CC, ES, SF		
10,800.0	7,869.0	7,881.2	7,879.3	53.8	15.8	89.82	-2,417.8	-281.8	227.4	157.9	69.58	3.269		
10,900.0	7,869.0	7,881.9	7,880.0	55.6	15.8	90.01	-2,417.8	-281.8	259.3	187.9	71.38	3.632		
11,000.0	7,869.0	7,882.7	7,880.8	57.4	15.8	90.20	-2,417.8	-281.8	320.5	247.3	73.18	4.379		
11,100.0	7,869.0	7,883.4	7,881.5	59.2	15.8	90.39	-2,417.8	-281.8	397.8	322.8	74.99	5.304		
11,200.0	7,869.0	7,884.2	7,882.3	61.1	15.8	90.58	-2,417.8	-281.8	483.4	406.6	76.81	6.294		
11,300.0	7,869.0	7,884.9	7,883.0	62.9	15.8	90.77	-2,417.8	-281.8	573.8	495.1	78.63	7.297		
11,400.0	7,869.0	7,885.7	7,883.8	64.7	15.8	90.96	-2,417.8	-281.8	666.9	586.4	80.45	8.289		
11,500.0	7,869.0	7,886.4	7,884.5	66.5	15.8	91.15	-2,417.8	-281.8	761.7	679.4	82.28	9.257		
11,600.0	7,869.0	7,887.2	7,885.3	68.4	15.8	91.34	-2,417.9	-281.8	857.7	773.6	84.12	10.197		
11,700.0	7,869.0	7,887.9	7,886.0	70.2	15.8	91.53	-2,417.9	-281.8	954.5	868.6	85.95	11.106		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6J-443	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		
8,600.0	7,869.0	7,865.5	7,857.0	20.7	16.5	91.06	-1,136.1	-433.9	967.6	930.6	37.06	26.108		
8,700.0	7,869.0	7,865.3	7,856.8	21.5	16.5	91.03	-1,136.1	-433.9	876.4	838.5	37.90	23.126		
8,800.0	7,869.0	7,865.1	7,856.6	22.5	16.5	91.01	-1,136.1	-433.9	787.4	748.5	38.87	20.258		
8,900.0	7,869.0	7,865.0	7,856.5	23.6	16.5	90.98	-1,136.1	-433.9	701.3	661.4	39.95	17.553		
9,000.0	7,869.0	7,864.8	7,856.3	24.8	16.5	90.96	-1,136.1	-433.9	619.4	578.3	41.14	15.057		
9,100.0	7,869.0	7,864.6	7,856.1	26.0	16.5	90.93	-1,136.1	-433.9	543.6	501.2	42.41	12.818		
9,200.0	7,869.0	7,864.5	7,856.0	27.4	16.5	90.91	-1,136.1	-433.9	476.8	433.1	43.76	10.897		
9,300.0	7,869.0	7,864.3	7,855.8	28.8	16.5	90.88	-1,136.1	-433.9	423.4	378.2	45.17	9.372		
9,400.0	7,869.0	7,864.1	7,855.7	30.3	16.5	90.86	-1,136.1	-433.9	388.7	342.0	46.64	8.334		
9,490.8	7,869.0	7,864.0	7,855.5	31.6	16.5	90.84	-1,136.1	-433.9	377.9	329.9	48.01	7.871 CC		
9,500.0	7,869.0	7,864.0	7,855.5	31.8	16.5	90.83	-1,136.1	-433.9	378.1	329.9	48.16	7.851 ES, SF		
9,600.0	7,869.0	7,863.8	7,855.3	33.3	16.5	90.81	-1,136.1	-433.9	393.4	343.7	49.71	7.914		
9,700.0	7,869.0	7,863.7	7,855.2	34.9	16.5	90.78	-1,136.1	-433.9	432.0	380.7	51.30	8.420		
9,800.0	7,869.0	7,863.5	7,855.0	36.5	16.5	90.76	-1,136.1	-433.9	488.3	435.4	52.93	9.226		
9,900.0	7,869.0	7,863.3	7,854.9	38.2	16.5	90.74	-1,136.1	-433.9	557.1	502.5	54.58	10.207		
10,000.0	7,869.0	7,863.2	7,854.7	39.9	16.5	90.71	-1,136.1	-433.9	634.2	577.9	56.25	11.274		
10,100.0	7,869.0	7,863.0	7,854.5	41.6	16.5	90.69	-1,136.1	-433.9	716.9	659.0	57.95	12.373		
10,200.0	7,869.0	7,862.9	7,854.4	43.3	16.5	90.66	-1,136.1	-433.9	803.7	744.0	59.66	13.471		
10,300.0	7,869.0	7,862.7	7,854.2	45.0	16.5	90.64	-1,136.1	-433.9	893.1	831.8	61.39	14.549		
10,400.0	7,869.0	7,862.6	7,854.1	46.7	16.5	90.62	-1,136.1	-433.9	984.7	921.5	63.13	15.597		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	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 22-6 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	138.04	-517.3	465.1	695.9				
100.0	100.0	84.6	84.6	0.1	0.1	138.07	-517.3	464.6	695.4	695.1	0.22	3,093.342	
200.0	200.0	182.1	182.0	0.3	0.3	138.16	-517.6	463.5	694.8	694.1	0.69	1,014.152	
300.0	300.0	281.6	281.5	0.6	0.6	138.21	-517.9	462.8	694.6	693.4	1.17	592.927	
400.0	400.0	383.3	383.3	0.8	0.9	138.24	-517.9	462.3	694.3	692.6	1.66	418.657	
500.0	500.0	482.5	482.5	1.0	1.1	138.28	-517.8	461.8	693.8	691.7	2.14	324.300	
600.0	600.0	581.8	581.8	1.2	1.4	138.30	-517.8	461.3	693.5	690.9	2.62	265.132	
700.0	700.0	682.9	682.8	1.5	1.6	138.31	-517.6	461.1	693.2	690.1	3.07	226.106	
800.0	800.0	784.8	784.8	1.7	1.8	138.30	-517.2	460.7	692.7	689.1	3.51	197.288	
900.0	900.0	885.2	885.2	1.9	2.1	138.31	-516.7	460.2	691.9	687.9	3.98	173.827	
1,000.0	1,000.0	983.7	983.7	2.1	2.3	138.34	-516.4	459.5	691.3	686.8	4.46	154.902	
1,100.0	1,100.0	1,083.5	1,083.5	2.4	2.6	138.36	-516.3	458.9	690.8	685.8	4.95	139.626	
1,200.0	1,200.0	1,186.6	1,186.5	2.6	2.8	138.35	-515.6	458.6	690.1	684.7	5.41	127.577	
1,300.0	1,300.0	1,288.3	1,288.3	2.8	3.0	138.30	-514.4	458.3	689.0	683.1	5.84	118.060	
1,400.0	1,400.0	1,391.1	1,391.1	3.0	3.2	138.22	-512.7	458.0	687.6	681.3	6.27	109.646	
1,500.0	1,500.0	1,492.8	1,492.7	3.3	3.5	138.16	-510.9	457.4	685.8	679.1	6.72	102.003	
1,600.0	1,600.0	1,595.8	1,595.7	3.5	3.7	138.09	-508.8	456.6	683.8	676.6	7.19	95.071	
1,700.0	1,700.0	1,697.7	1,697.6	3.7	4.0	142.34	-506.3	455.5	682.4	674.7	7.66	89.049	
1,725.7	1,725.7	1,723.6	1,723.5	3.8	4.0	142.36	-505.7	455.3	682.3	674.5	7.78	87.661	
1,800.0	1,799.9	1,798.4	1,798.2	3.9	4.2	142.46	-503.8	454.4	682.8	674.7	8.13	83.986	
1,900.0	1,899.7	1,899.9	1,899.7	4.2	4.5	142.72	-501.2	453.0	685.2	676.6	8.60	79.635	
2,000.0	1,999.3	1,998.9	1,998.6	4.4	4.7	143.13	-499.0	451.2	689.7	680.6	9.08	75.965	
2,100.0	2,098.6	2,095.9	2,095.7	4.6	5.0	143.66	-497.3	449.3	696.5	687.0	9.55	72.932	
2,189.0	2,186.7	2,180.5	2,180.2	4.8	5.2	144.22	-496.3	447.6	704.8	694.9	9.96	70.741	
2,200.0	2,197.5	2,190.9	2,190.6	4.9	5.2	144.30	-496.2	447.4	706.0	696.0	10.02	70.481	
2,300.0	2,296.4	2,288.4	2,288.0	5.1	5.5	145.07	-495.5	445.7	716.9	706.4	10.51	68.224	
2,400.0	2,395.2	2,387.0	2,386.7	5.4	5.7	145.84	-494.9	443.9	728.0	717.0	11.00	66.166	
2,500.0	2,494.0	2,482.9	2,482.5	5.7	6.0	146.57	-494.5	442.2	739.4	727.9	11.49	64.364	
2,600.0	2,592.8	2,578.9	2,578.5	6.0	6.2	147.28	-494.5	440.7	751.4	739.4	11.97	62.793	
2,700.0	2,691.6	2,675.4	2,675.1	6.3	6.4	147.97	-494.6	439.6	763.8	751.4	12.44	61.412	
2,800.0	2,790.4	2,771.1	2,770.7	6.6	6.6	148.61	-494.9	438.8	776.6	763.8	12.88	60.286	
2,900.0	2,889.2	2,868.2	2,867.8	6.9	6.8	149.24	-495.5	438.1	789.9	776.6	13.30	59.381	
3,000.0	2,988.0	2,968.9	2,968.5	7.2	7.0	149.88	-496.1	437.4	803.3	789.6	13.74	58.473	
3,100.0	3,086.9	3,069.7	3,069.3	7.6	7.2	150.49	-496.4	436.5	816.5	802.3	14.21	57.467	
3,200.0	3,185.7	3,169.0	3,168.6	7.9	7.4	151.08	-496.7	435.5	829.6	814.9	14.69	56.472	
3,300.0	3,284.5	3,268.4	3,268.0	8.2	7.7	151.67	-497.0	434.3	842.8	827.6	15.18	55.525	
3,400.0	3,383.3	3,368.2	3,367.8	8.5	7.9	152.23	-497.1	433.2	855.9	840.2	15.68	54.593	
3,500.0	3,482.1	3,467.7	3,467.3	8.9	8.2	152.73	-496.9	432.5	869.0	852.8	16.18	53.704	
3,600.0	3,580.9	3,566.9	3,566.5	9.2	8.4	153.19	-496.4	432.2	882.1	865.4	16.67	52.910	
3,700.0	3,679.7	3,665.6	3,665.2	9.5	8.6	153.62	-495.8	432.0	895.2	878.1	17.14	52.224	
3,800.0	3,778.6	3,762.9	3,762.5	9.9	8.8	154.03	-495.2	431.9	908.5	890.9	17.58	51.667	
3,900.0	3,877.4	3,858.6	3,858.1	10.2	9.0	154.42	-494.9	432.0	922.1	904.1	17.99	51.254	
4,000.0	3,976.2	3,952.8	3,952.3	10.6	9.1	154.82	-495.1	431.8	936.1	917.8	18.37	50.950	
4,100.0	4,075.0	4,048.0	4,047.5	10.9	9.2	155.25	-496.1	431.4	950.7	932.0	18.75	50.696	
4,200.0	4,173.8	4,145.2	4,144.8	11.2	9.3	155.70	-497.4	430.8	965.6	946.5	19.14	50.445	
4,300.0	4,272.6	4,244.4	4,244.0	11.6	9.5	156.16	-498.9	429.9	980.6	961.0	19.55	50.168	
4,400.0	4,371.4	4,346.0	4,345.5	11.9	9.7	156.65	-500.6	428.3	995.4	975.5	19.98	49.818	
7,900.0	7,733.7	7,800.0	7,798.0	19.3	17.1	-45.57	-461.8	388.4	997.4	968.5	28.90	34.508	
7,950.0	7,760.7	7,810.4	7,808.3	19.2	17.1	-49.73	-461.2	388.1	958.0	928.4	29.60	32.362	
8,000.0	7,785.0	7,829.0	7,826.9	19.1	17.2	-55.03	-460.0	387.5	918.0	887.2	30.78	29.822	
8,050.0	7,806.3	7,845.3	7,843.1	19.0	17.2	-60.81	-459.1	387.0	877.4	845.2	32.13	27.307	

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 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6J-443	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 22-6 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,100.0	7,824.6	7,859.0	7,856.8	18.9	17.3	-66.92	-458.3	386.6	836.5	803.0	33.48	24.985		
8,150.0	7,839.9	7,870.1	7,867.9	18.9	17.3	-73.12	-457.7	386.3	795.7	761.0	34.66	22.954		
8,200.0	7,852.0	7,878.5	7,876.3	18.9	17.3	-79.13	-457.2	386.0	755.2	719.7	35.56	21.238		
8,250.0	7,860.9	7,884.1	7,881.9	19.0	17.3	-84.68	-456.9	385.9	715.5	679.4	36.14	19.800		
8,300.0	7,866.5	7,886.9	7,884.6	19.1	17.3	-89.58	-456.8	385.8	676.9	640.5	36.43	18.579		
8,350.0	7,868.9	7,886.7	7,884.5	19.3	17.3	-93.69	-456.8	385.8	639.9	603.3	36.55	17.507		
8,361.6	7,869.0	7,886.2	7,884.0	19.3	17.3	-94.53	-456.8	385.8	631.5	595.0	36.56	17.273		
8,400.0	7,869.0	7,884.4	7,882.2	19.5	17.3	-94.29	-456.9	385.9	604.8	568.1	36.72	16.471		
8,500.0	7,869.0	7,879.6	7,877.4	20.0	17.3	-93.67	-457.2	386.0	541.7	504.4	37.25	14.542		
8,600.0	7,869.0	7,874.6	7,872.4	20.7	17.3	-93.03	-457.4	386.1	491.0	453.0	37.94	12.939		
8,700.0	7,869.0	7,869.5	7,867.4	21.5	17.3	-92.38	-457.7	386.3	456.7	417.9	38.78	11.777		
8,800.0	7,869.0	7,864.3	7,862.2	22.5	17.3	-91.70	-458.0	386.4	442.8	403.1	39.74	11.141		
8,812.7	7,869.0	7,863.7	7,861.5	22.6	17.3	-91.62	-458.0	386.4	442.6	402.7	39.88	11.098 CC, ES		
8,900.0	7,869.0	7,859.0	7,856.8	23.6	17.3	-91.01	-458.3	386.6	451.1	410.3	40.82	11.051 SF		
9,000.0	7,869.0	7,853.5	7,851.4	24.8	17.3	-90.31	-458.6	386.7	480.5	438.5	41.99	11.443		
9,100.0	7,869.0	7,847.9	7,845.8	26.0	17.2	-89.58	-458.9	386.9	527.4	484.2	43.24	12.197		
9,200.0	7,869.0	7,842.1	7,840.0	27.4	17.2	-88.84	-459.2	387.1	587.7	543.2	44.56	13.188		
9,300.0	7,869.0	7,836.2	7,834.1	28.8	17.2	-88.07	-459.6	387.2	657.7	611.8	45.94	14.316		
9,400.0	7,869.0	7,830.1	7,828.0	30.3	17.2	-87.29	-460.0	387.4	734.7	687.3	47.37	15.510		
9,500.0	7,869.0	7,823.9	7,821.8	31.8	17.2	-86.49	-460.3	387.6	816.5	767.7	48.83	16.723		
9,600.0	7,869.0	7,817.4	7,815.3	33.3	17.2	-85.66	-460.7	387.8	902.1	851.7	50.32	17.928		
9,700.0	7,869.0	7,810.8	7,808.7	34.9	17.1	-84.82	-461.1	388.1	990.2	938.4	51.83	19.106		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6J-443	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 - Veal 14-6 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 112-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		
10,600.0	7,869.0	7,904.2	7,903.6	50.3	14.1	-92.84	-3,193.9	137.5	968.2	903.8	64.33	15.049		
10,700.0	7,869.0	7,903.1	7,902.6	52.0	14.1	-92.54	-3,193.9	137.5	870.4	804.3	66.12	13.164		
10,800.0	7,869.0	7,902.1	7,901.6	53.8	14.1	-92.24	-3,193.9	137.5	773.3	705.3	67.92	11.385		
10,900.0	7,869.0	7,901.1	7,900.6	55.6	14.1	-91.94	-3,193.9	137.5	676.9	607.2	69.72	9.709		
11,000.0	7,869.0	7,900.1	7,899.6	57.4	14.1	-91.65	-3,193.9	137.5	581.8	510.3	71.53	8.134		
11,100.0	7,869.0	7,899.1	7,898.6	59.2	14.1	-91.35	-3,193.9	137.5	488.6	415.3	73.34	6.662		
11,200.0	7,869.0	7,898.2	7,897.6	61.1	14.1	-91.06	-3,193.9	137.5	398.8	323.6	75.16	5.305		
11,300.0	7,869.0	7,897.2	7,896.6	62.9	14.1	-90.78	-3,194.0	137.5	315.1	238.1	76.99	4.093		
11,400.0	7,869.0	7,896.2	7,895.7	64.7	14.1	-90.50	-3,194.0	137.5	244.0	165.2	78.82	3.096		
11,500.0	7,869.0	7,895.3	7,894.7	66.5	14.1	-90.22	-3,194.0	137.5	199.6	118.9	80.65	2.474		
11,548.7	7,869.0	7,894.8	7,894.3	67.4	14.1	-90.08	-3,194.0	137.5	193.5	112.0	81.54	2.373 CC, ES, SF		
11,600.0	7,869.0	7,894.4	7,893.8	68.4	14.1	-89.94	-3,194.0	137.5	200.2	117.7	82.49	2.427		
11,700.0	7,869.0	7,893.4	7,892.9	70.2	14.1	-89.66	-3,194.0	137.5	245.7	161.3	84.32	2.913		
11,800.0	7,869.0	7,892.5	7,891.9	72.1	14.1	-89.39	-3,194.0	137.5	317.2	231.0	86.16	3.681		
11,900.0	7,869.0	7,891.6	7,891.0	73.9	14.1	-89.12	-3,194.0	137.5	401.1	313.1	88.01	4.558		
12,000.0	7,869.0	7,890.7	7,890.1	75.8	14.1	-88.86	-3,194.0	137.5	491.0	401.2	89.85	5.465		
12,100.0	7,869.0	7,889.8	7,889.2	77.6	14.1	-88.59	-3,194.0	137.5	584.3	492.6	91.69	6.372		
12,139.6	7,869.0	7,889.5	7,888.9	78.4	14.1	-88.49	-3,194.0	137.5	621.8	529.4	92.42	6.728		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	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 @ 5073.0ft (RKB - 13')

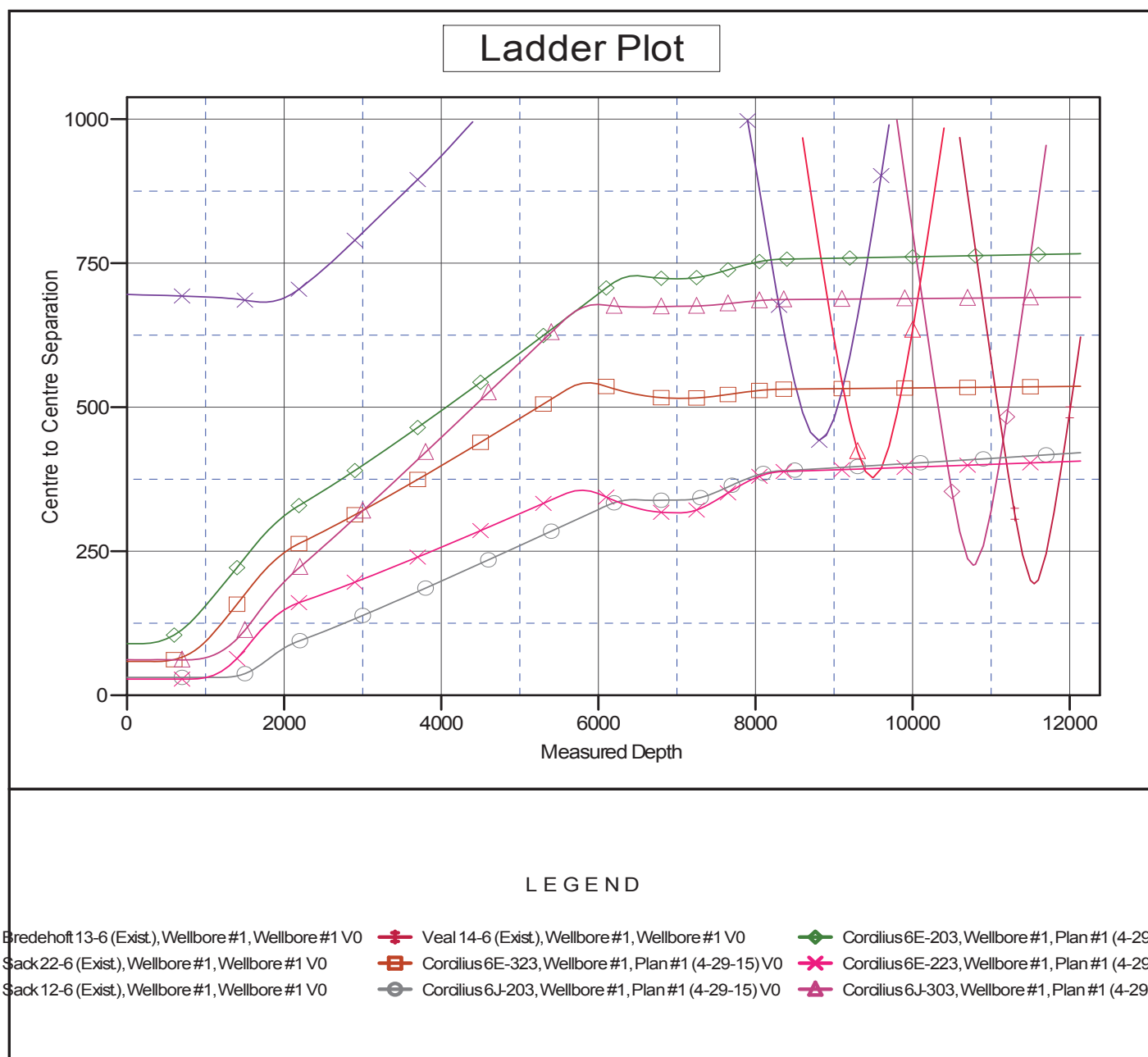
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Corcilus 6J-443

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.36°



Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6J-443
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5073.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5073.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6J-443	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 @ 5073.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Corcilus 6J-443

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.36°

