

PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Corcilius 6E-203**

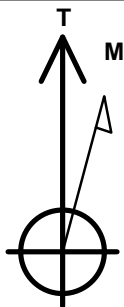
Surface Location: Corcilius 1S67W6J Pad Sec.6-T1S-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 5061.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1242661.64	3157561.67	39.998120	-104.937600	
RKB - 13' WELL @ 5074.0ft (RKB - 13')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E Hardline (6E-203)	1.0	-11.1	-639.3	Polygon
SHL 808'FNL & 765'FWL	1.0	0.0	0.0	Point
BHL 500'FSL & 50'FWL	7615.0	-3784.9	-689.3	Point



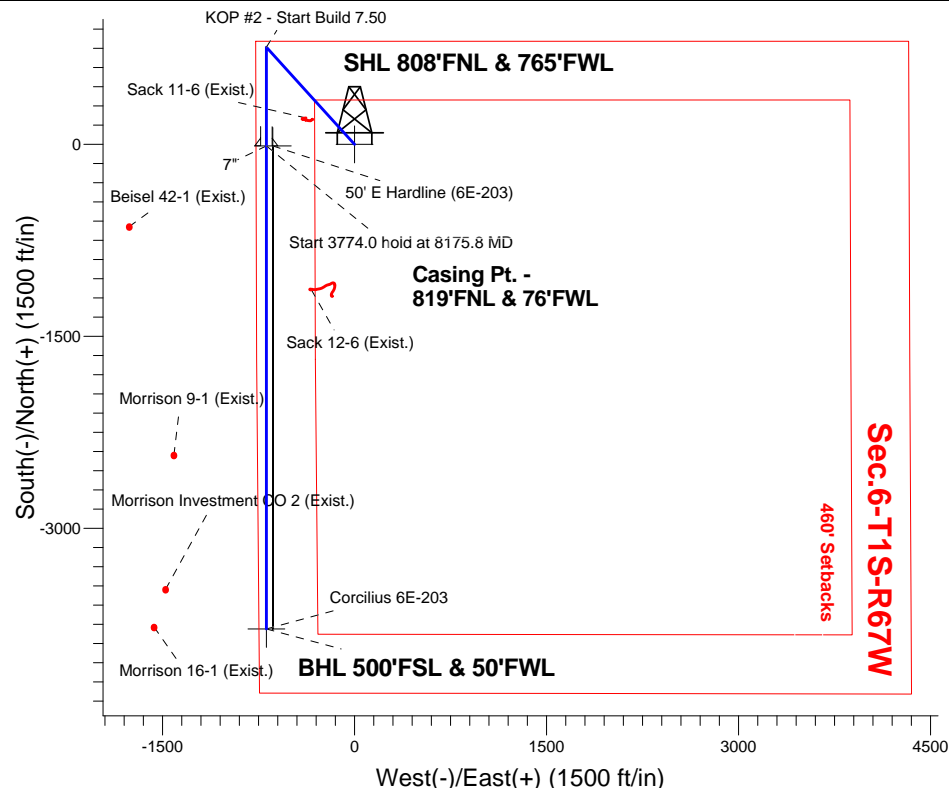
Azimuths to True North
Magnetic North: 8.40°

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

ANNOTATIONS

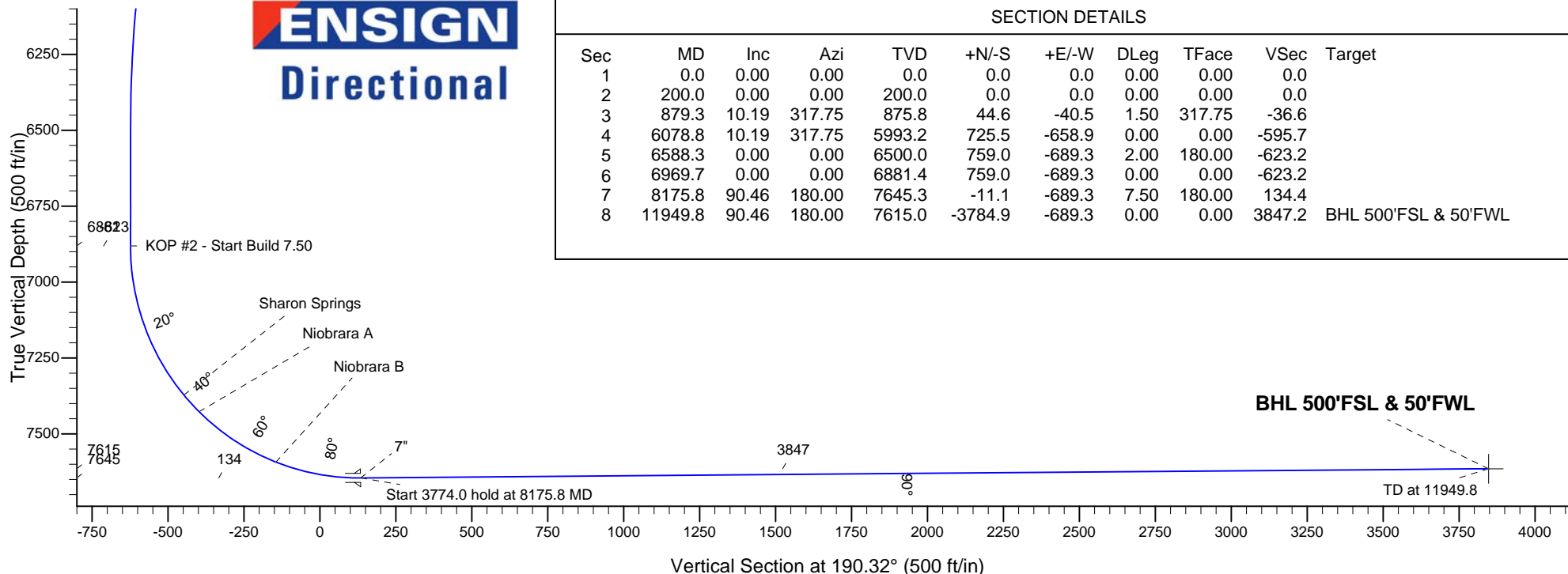
TVD	MD	Annotation
200.0	200.0	KOP - Start Build 1.50
5993.2	6078.8	Start Drop -2.00
6881.4	6969.7	KOP #2 - Start Build 7.50
7645.3	8175.8	Start 3774.0 hold at 8175.8 MD
7615.0	11949.8	TD at 11949.8

Corcilius 1S67W6J Pad Sec.6-T1S-R67W
Corcilius 6E-203
Plan #1 (4-29-15)
15:29, September 23 2015



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	879.3	10.19	317.75	875.8	44.6	-40.5	1.50	317.75	-36.6	
4	6078.8	10.19	317.75	5993.2	725.5	-658.9	0.00	0.00	-595.7	
5	6588.3	0.00	0.00	6500.0	759.0	-689.3	2.00	180.00	-623.2	
6	6969.7	0.00	0.00	6881.4	759.0	-689.3	0.00	0.00	-623.2	
7	8175.8	90.46	180.00	7645.3	-11.1	-689.3	7.50	180.00	134.4	
8	11949.8	90.46	180.00	7615.0	-3784.9	-689.3	0.00	0.00	3847.2	BHL 500'FSL & 50'FWL





Directional

PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.6-T1S-R67W

Corcilus 1S67W6J Pad Sec.6-T1S-R67W

Corcilus 6E-203

Wellbore #1

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

Standard Planning Report

23 September, 2015

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6E-203
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6E-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-29-15)		

Project	SEC.6-T1S-R67W, Adams County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Corcilus 1S67W6J Pad Sec.6-T1S-R67W		
Site Position:		Northing:	1,242,661.65 usft
From:	Lat/Long	Easting:	3,157,561.67 usft
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "
		Latitude:	39.998120
		Longitude:	-104.937600
		Grid Convergence:	0.36 °

Well	Corcilus 6E-203		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	0.0 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 (°)
	3.0	0.0	0.0	190.32

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
3.0	0.00	0.00	3.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
879.3	10.19	317.75	875.8	44.6	-40.5	1.50	1.50	0.00	317.75	
6,078.8	10.19	317.75	5,993.2	725.5	-658.9	0.00	0.00	0.00	0.00	
6,588.3	0.00	0.00	6,500.0	759.0	-689.3	2.00	-2.00	0.00	180.00	
6,969.7	0.00	0.00	6,881.4	759.0	-689.3	0.00	0.00	0.00	0.00	
8,175.8	90.46	180.00	7,645.3	-11.1	-689.3	7.50	7.50	0.00	180.00	
11,949.8	90.46	180.00	7,615.0	-3,784.9	-689.3	0.00	0.00	0.00	0.00	BHL 500'FSL & 50'FV

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6E-203
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6E-203	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)
3.0	0.00	0.00	3.0	0.0	0.0	0.0	0.00	0.00	0.00
50' E Hardline (6E-203) - SHL 808'FNL & 765'FWL									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 1.50									
300.0	1.50	317.75	300.0	1.0	-0.9	-0.8	1.50	1.50	0.00
400.0	3.00	317.75	399.9	3.9	-3.5	-3.2	1.50	1.50	0.00
500.0	4.50	317.75	499.7	8.7	-7.9	-7.2	1.50	1.50	0.00
600.0	6.00	317.75	599.3	15.5	-14.1	-12.7	1.50	1.50	0.00
700.0	7.50	317.75	698.6	24.2	-22.0	-19.9	1.50	1.50	0.00
800.0	9.00	317.75	797.5	34.8	-31.6	-28.6	1.50	1.50	0.00
879.3	10.19	317.75	875.8	44.6	-40.5	-36.6	1.50	1.50	0.00
900.0	10.19	317.75	896.1	47.3	-43.0	-38.8	0.00	0.00	0.00
1,000.0	10.19	317.75	994.5	60.4	-54.9	-49.6	0.00	0.00	0.00
1,100.0	10.19	317.75	1,092.9	73.5	-66.8	-60.4	0.00	0.00	0.00
1,200.0	10.19	317.75	1,191.4	86.6	-78.6	-71.1	0.00	0.00	0.00
1,300.0	10.19	317.75	1,289.8	99.7	-90.5	-81.9	0.00	0.00	0.00
1,400.0	10.19	317.75	1,388.2	112.8	-102.4	-92.6	0.00	0.00	0.00
1,500.0	10.19	317.75	1,486.6	125.9	-114.3	-103.4	0.00	0.00	0.00
1,600.0	10.19	317.75	1,585.1	139.0	-126.2	-114.1	0.00	0.00	0.00
1,700.0	10.19	317.75	1,683.5	152.1	-138.1	-124.9	0.00	0.00	0.00
1,800.0	10.19	317.75	1,781.9	165.2	-150.0	-135.6	0.00	0.00	0.00
1,900.0	10.19	317.75	1,880.3	178.3	-161.9	-146.4	0.00	0.00	0.00
2,000.0	10.19	317.75	1,978.7	191.4	-173.8	-157.1	0.00	0.00	0.00
2,100.0	10.19	317.75	2,077.2	204.5	-185.7	-167.9	0.00	0.00	0.00
2,200.0	10.19	317.75	2,175.6	217.6	-197.6	-178.6	0.00	0.00	0.00
2,300.0	10.19	317.75	2,274.0	230.7	-209.5	-189.4	0.00	0.00	0.00
2,400.0	10.19	317.75	2,372.4	243.8	-221.4	-200.1	0.00	0.00	0.00
2,500.0	10.19	317.75	2,470.9	256.9	-233.3	-210.9	0.00	0.00	0.00
2,600.0	10.19	317.75	2,569.3	269.9	-245.2	-221.7	0.00	0.00	0.00
2,700.0	10.19	317.75	2,667.7	283.0	-257.1	-232.4	0.00	0.00	0.00
2,800.0	10.19	317.75	2,766.1	296.1	-269.0	-243.2	0.00	0.00	0.00
2,900.0	10.19	317.75	2,864.6	309.2	-280.9	-253.9	0.00	0.00	0.00
3,000.0	10.19	317.75	2,963.0	322.3	-292.7	-264.7	0.00	0.00	0.00
3,100.0	10.19	317.75	3,061.4	335.4	-304.6	-275.4	0.00	0.00	0.00
3,200.0	10.19	317.75	3,159.8	348.5	-316.5	-286.2	0.00	0.00	0.00
3,300.0	10.19	317.75	3,258.2	361.6	-328.4	-296.9	0.00	0.00	0.00
3,400.0	10.19	317.75	3,356.7	374.7	-340.3	-307.7	0.00	0.00	0.00
3,500.0	10.19	317.75	3,455.1	387.8	-352.2	-318.4	0.00	0.00	0.00
3,600.0	10.19	317.75	3,553.5	400.9	-364.1	-329.2	0.00	0.00	0.00
3,700.0	10.19	317.75	3,651.9	414.0	-376.0	-339.9	0.00	0.00	0.00
3,800.0	10.19	317.75	3,750.4	427.1	-387.9	-350.7	0.00	0.00	0.00
3,900.0	10.19	317.75	3,848.8	440.2	-399.8	-361.4	0.00	0.00	0.00
4,000.0	10.19	317.75	3,947.2	453.3	-411.7	-372.2	0.00	0.00	0.00
4,100.0	10.19	317.75	4,045.6	466.4	-423.6	-383.0	0.00	0.00	0.00
4,200.0	10.19	317.75	4,144.0	479.5	-435.5	-393.7	0.00	0.00	0.00
4,300.0	10.19	317.75	4,242.5	492.6	-447.4	-404.5	0.00	0.00	0.00
4,400.0	10.19	317.75	4,340.9	505.7	-459.3	-415.2	0.00	0.00	0.00
4,490.5	10.19	317.75	4,430.0	517.5	-470.0	-424.9	0.00	0.00	0.00
Parkman									
4,500.0	10.19	317.75	4,439.3	518.8	-471.2	-426.0	0.00	0.00	0.00
4,600.0	10.19	317.75	4,537.7	531.9	-483.1	-436.7	0.00	0.00	0.00
4,700.0	10.19	317.75	4,636.2	545.0	-494.9	-447.5	0.00	0.00	0.00

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Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6E-203	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)
4,800.0	10.19	317.75	4,734.6	558.1	-506.8	-458.2	0.00	0.00	0.00
4,866.5	10.19	317.75	4,800.0	566.8	-514.8	-465.4	0.00	0.00	0.00
Sussex									
4,900.0	10.19	317.75	4,833.0	571.2	-518.7	-469.0	0.00	0.00	0.00
5,000.0	10.19	317.75	4,931.4	584.3	-530.6	-479.7	0.00	0.00	0.00
5,100.0	10.19	317.75	5,029.8	597.4	-542.5	-490.5	0.00	0.00	0.00
5,200.0	10.19	317.75	5,128.3	610.5	-554.4	-501.2	0.00	0.00	0.00
5,300.0	10.19	317.75	5,226.7	623.6	-566.3	-512.0	0.00	0.00	0.00
5,400.0	10.19	317.75	5,325.1	636.7	-578.2	-522.7	0.00	0.00	0.00
5,455.8	10.19	317.75	5,380.0	644.0	-584.8	-528.7	0.00	0.00	0.00
Shannon									
5,500.0	10.19	317.75	5,423.5	649.7	-590.1	-533.5	0.00	0.00	0.00
5,600.0	10.19	317.75	5,522.0	662.8	-602.0	-544.3	0.00	0.00	0.00
5,700.0	10.19	317.75	5,620.4	675.9	-613.9	-555.0	0.00	0.00	0.00
5,800.0	10.19	317.75	5,718.8	689.0	-625.8	-565.8	0.00	0.00	0.00
5,900.0	10.19	317.75	5,817.2	702.1	-637.7	-576.5	0.00	0.00	0.00
6,000.0	10.19	317.75	5,915.7	715.2	-649.6	-587.3	0.00	0.00	0.00
6,078.8	10.19	317.75	5,993.2	725.6	-658.9	-595.7	0.00	0.00	0.00
Start Drop -2.00									
6,100.0	9.77	317.75	6,014.1	728.3	-661.4	-598.0	2.00	-2.00	0.00
6,200.0	7.77	317.75	6,112.9	739.6	-671.7	-607.2	2.00	-2.00	0.00
6,300.0	5.77	317.75	6,212.2	748.3	-679.6	-614.4	2.00	-2.00	0.00
6,400.0	3.77	317.75	6,311.9	754.4	-685.2	-619.4	2.00	-2.00	0.00
6,500.0	1.77	317.75	6,411.7	758.0	-688.4	-622.4	2.00	-2.00	0.00
6,588.3	0.00	0.00	6,500.0	759.0	-689.3	-623.2	2.00	-2.00	0.00
6,600.0	0.00	0.00	6,511.7	759.0	-689.3	-623.2	0.00	0.00	0.00
6,700.0	0.00	0.00	6,611.7	759.0	-689.3	-623.2	0.00	0.00	0.00
6,800.0	0.00	0.00	6,711.7	759.0	-689.3	-623.2	0.00	0.00	0.00
6,900.0	0.00	0.00	6,811.7	759.0	-689.3	-623.2	0.00	0.00	0.00
6,969.7	0.00	0.00	6,881.4	759.0	-689.3	-623.2	0.00	0.00	0.00
KOP #2 - Start Build 7.50									
7,000.0	2.28	180.00	6,911.7	758.4	-689.3	-622.6	7.51	7.51	0.00
7,100.0	9.78	180.00	7,011.1	747.9	-689.3	-612.3	7.50	7.50	0.00
7,200.0	17.28	180.00	7,108.3	724.5	-689.3	-589.3	7.50	7.50	0.00
7,300.0	24.78	180.00	7,201.5	688.7	-689.3	-554.0	7.50	7.50	0.00
7,400.0	32.28	180.00	7,289.3	641.0	-689.3	-507.1	7.50	7.50	0.00
7,500.0	39.78	180.00	7,370.1	582.2	-689.3	-449.3	7.50	7.50	0.00
7,502.4	39.96	180.00	7,372.0	580.6	-689.3	-447.7	7.50	7.50	0.00
Sharon Springs									
7,577.4	45.58	180.00	7,427.0	529.8	-689.3	-397.7	7.50	7.50	0.00
Niobrara A									
7,600.0	47.28	180.00	7,442.6	513.4	-689.3	-381.5	7.50	7.50	0.00
7,700.0	54.78	180.00	7,505.4	435.7	-689.3	-305.1	7.50	7.50	0.00
7,800.0	62.28	180.00	7,557.6	350.5	-689.3	-221.3	7.50	7.50	0.00
7,885.3	68.67	180.00	7,593.0	272.9	-689.3	-145.0	7.50	7.50	0.00
Niobrara B									
7,900.0	69.78	180.00	7,598.2	259.1	-689.3	-131.4	7.50	7.50	0.00
8,000.0	77.28	180.00	7,626.6	163.3	-689.3	-37.2	7.50	7.50	0.00
8,100.0	84.78	180.00	7,642.2	64.6	-689.3	59.9	7.50	7.50	0.00
8,175.8	90.46	180.00	7,645.3	-11.1	-689.3	134.4	7.50	7.50	0.00
Start 3774.0 hold at 8175.8 MD - 7"									
8,200.0	90.46	180.00	7,645.1	-35.3	-689.3	158.2	0.00	0.00	0.00

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Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6E-203	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)
8,300.0	90.46	180.00	7,644.3	-135.3	-689.3	256.6	0.00	0.00	0.00
8,400.0	90.46	180.00	7,643.5	-235.3	-689.3	355.0	0.00	0.00	0.00
8,500.0	90.46	180.00	7,642.7	-335.3	-689.3	453.4	0.00	0.00	0.00
8,600.0	90.46	180.00	7,641.9	-435.3	-689.3	551.7	0.00	0.00	0.00
8,700.0	90.46	180.00	7,641.1	-535.3	-689.3	650.1	0.00	0.00	0.00
8,800.0	90.46	180.00	7,640.3	-635.3	-689.3	748.5	0.00	0.00	0.00
8,900.0	90.46	180.00	7,639.5	-735.3	-689.3	846.9	0.00	0.00	0.00
9,000.0	90.46	180.00	7,638.7	-835.3	-689.3	945.3	0.00	0.00	0.00
9,100.0	90.46	180.00	7,637.9	-935.3	-689.3	1,043.6	0.00	0.00	0.00
9,200.0	90.46	180.00	7,637.1	-1,035.3	-689.3	1,142.0	0.00	0.00	0.00
9,300.0	90.46	180.00	7,636.3	-1,135.3	-689.3	1,240.4	0.00	0.00	0.00
9,400.0	90.46	180.00	7,635.5	-1,235.3	-689.3	1,338.8	0.00	0.00	0.00
9,500.0	90.46	180.00	7,634.7	-1,335.2	-689.3	1,437.2	0.00	0.00	0.00
9,600.0	90.46	180.00	7,633.9	-1,435.2	-689.3	1,535.5	0.00	0.00	0.00
9,700.0	90.46	180.00	7,633.1	-1,535.2	-689.3	1,633.9	0.00	0.00	0.00
9,800.0	90.46	180.00	7,632.3	-1,635.2	-689.3	1,732.3	0.00	0.00	0.00
9,900.0	90.46	180.00	7,631.5	-1,735.2	-689.3	1,830.7	0.00	0.00	0.00
10,000.0	90.46	180.00	7,630.7	-1,835.2	-689.3	1,929.0	0.00	0.00	0.00
10,100.0	90.46	180.00	7,629.9	-1,935.2	-689.3	2,027.4	0.00	0.00	0.00
10,200.0	90.46	180.00	7,629.0	-2,035.2	-689.3	2,125.8	0.00	0.00	0.00
10,300.0	90.46	180.00	7,628.2	-2,135.2	-689.3	2,224.2	0.00	0.00	0.00
10,400.0	90.46	180.00	7,627.4	-2,235.2	-689.3	2,322.6	0.00	0.00	0.00
10,500.0	90.46	180.00	7,626.6	-2,335.2	-689.3	2,420.9	0.00	0.00	0.00
10,600.0	90.46	180.00	7,625.8	-2,435.2	-689.3	2,519.3	0.00	0.00	0.00
10,700.0	90.46	180.00	7,625.0	-2,535.2	-689.3	2,617.7	0.00	0.00	0.00
10,800.0	90.46	180.00	7,624.2	-2,635.2	-689.3	2,716.1	0.00	0.00	0.00
10,900.0	90.46	180.00	7,623.4	-2,735.2	-689.3	2,814.4	0.00	0.00	0.00
11,000.0	90.46	180.00	7,622.6	-2,835.2	-689.3	2,912.8	0.00	0.00	0.00
11,100.0	90.46	180.00	7,621.8	-2,935.2	-689.3	3,011.2	0.00	0.00	0.00
11,200.0	90.46	180.00	7,621.0	-3,035.2	-689.3	3,109.6	0.00	0.00	0.00
11,300.0	90.46	180.00	7,620.2	-3,135.2	-689.3	3,208.0	0.00	0.00	0.00
11,400.0	90.46	180.00	7,619.4	-3,235.2	-689.3	3,306.3	0.00	0.00	0.00
11,500.0	90.46	180.00	7,618.6	-3,335.2	-689.3	3,404.7	0.00	0.00	0.00
11,600.0	90.46	180.00	7,617.8	-3,435.2	-689.3	3,503.1	0.00	0.00	0.00
11,700.0	90.46	180.00	7,617.0	-3,535.2	-689.3	3,601.5	0.00	0.00	0.00
11,800.0	90.46	180.00	7,616.2	-3,635.2	-689.3	3,699.9	0.00	0.00	0.00
11,900.0	90.46	180.00	7,615.4	-3,735.2	-689.3	3,798.2	0.00	0.00	0.00
11,949.8	90.46	180.00	7,615.0	-3,784.9	-689.3	3,847.2	0.00	0.00	0.00
TD at 11949.8 - BHL 500'FSL & 50'FWL									

Database:	US_EDM	Local Co-ordinate Reference:	Well Corcilus 6E-203
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Project:	SEC.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	North Reference:	True
Well:	Corcilus 6E-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (4-29-15)		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
50' E Hardline (6E-203) - plan misses target center by 639.4ft at 3.0ft MD (3.0 TVD, 0.0 N, 0.0 E) - Polygon	0.00	0.00	1.0	-11.1	-639.3	1,242,646.48	3,156,922.47	39.998090	-104.939882
Point 1			1.0	0.0	0.0	1,242,646.48	3,156,922.47		
Point 2			1.0	-3,773.8	0.0	1,238,872.89	3,156,946.41		
SHL 808'FNL & 765'FWL - plan misses target center by 2.0ft at 3.0ft MD (3.0 TVD, 0.0 N, 0.0 E) - Point	0.00	0.00	1.0	0.0	0.0	1,242,661.65	3,157,561.67	39.998120	-104.937600
BHL 500'FSL & 50'FWL - plan hits target center - Point	0.00	0.00	7,615.0	-3,784.9	-689.3	1,238,872.56	3,156,896.38	39.987730	-104.940060

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
8,175.8	7,645.3	7"	7	7-1/2	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,490.5	-644.0	Parkman		0.00	
4,866.5	-274.0	Sussex		0.00	
4,075.0	0.0	Niobrara C		0.00	
4,075.0	0.0	Fort Hays		0.00	
4,075.0	0.0	Codell		0.00	
5,455.8	306.0	Shannon		0.00	
7,502.4	2,298.0	Sharon Springs		0.00	
7,577.4	2,353.0	Niobrara A		0.00	
7,885.3	2,519.0	Niobrara B		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.0	200.0	0.0	0.0	KOP - Start Build 1.50	
6,078.8	5,993.2	725.6	-658.9	Start Drop -2.00	
6,969.7	6,881.4	759.0	-689.3	KOP #2 - Start Build 7.50	
8,175.8	7,645.3	-11.1	-689.3	Start 3774.0 hold at 8175.8 MD	
11,949.8	7,615.0	-3,784.9	-689.3	TD at 11949.8	



Directional

PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.6-T1S-R67W

Corcilus 1S67W6J Pad Sec.6-T1S-R67W

Corcilus 6E-203

Wellbore #1

Plan #1 (4-29-15)

Anticollision Report

23 September, 2015



Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date 5/4/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,949.8	Plan #1 (4-29-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Corcilius 1S67W6J Pad Sec.6-T1S-R67W						
Corcilius 6E-223 - Wellbore #1 - Plan #1 (4-29-15)	200.0	200.0	61.6	61.0	91.869	CC, ES
Corcilius 6E-223 - Wellbore #1 - Plan #1 (4-29-15)	11,949.8	11,930.8	406.3	250.0	2.600	SF
Corcilius 6E-323 - Wellbore #1 - Plan #1 (4-29-15)	200.0	200.0	30.8	30.1	45.935	CC, ES
Corcilius 6E-323 - Wellbore #1 - Plan #1 (4-29-15)	11,949.8	12,036.7	233.3	89.0	1.617	SF
Corcilius 6J-443 - Wellbore #1 - Plan #1 (4-29-15)	200.0	199.0	89.7	89.0	134.078	CC, ES
Corcilius 6J-443 - Wellbore #1 - Plan #1 (4-29-15)	11,949.8	12,139.6	766.6	616.4	5.104	SF
Existing Wells Sec.6-T1S-R67W						
Morrison 16-1 (Exist.) - Wellbore #1 - Wellbore #1	11,935.2	7,614.1	877.1	646.9	3.810	CC
Morrison 16-1 (Exist.) - Wellbore #1 - Wellbore #1	11,949.8	7,614.0	877.2	646.7	3.806	ES, SF
Morrison 9-1 (Exist.) - Wellbore #1 - Wellbore #1	10,590.9	7,615.9	722.9	517.2	3.515	CC
Morrison 9-1 (Exist.) - Wellbore #1 - Wellbore #1	10,600.0	7,615.8	722.9	517.1	3.512	ES, SF
Morrison Investment CO 2 (Exist.) - Wellbore #1 - Wellbo						Out of range
Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1	2,618.7	2,578.5	143.9	128.5	9.348	CC
Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1	2,700.0	2,659.0	144.4	128.5	9.056	ES
Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1	7,956.1	7,604.8	292.6	258.0	8.462	SF
Sack 12-6 (Exist.) - Wellbore #1 - Wellbore #1	9,300.3	7,618.5	340.9	293.1	7.132	CC, ES, SF

Offset Design	Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6E-223 - Wellbore #1 - Plan #1 (4-29-15)												Offset Site Error:	0.0 ft
Survey Program:	0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Between Centres (ft)	Between Ellipses (ft)						
3.0	3.0	3.0	3.0	0.0	0.0	90.00	0.0	61.6	61.6	61.6	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	61.6	61.6	61.4	0.22	278.406		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	61.6	61.6	61.0	0.67	91.869 CC, ES		
300.0	300.0	300.0	300.0	0.6	0.6	133.12	0.0	61.6	62.5	61.4	1.12	55.784		
400.0	399.9	399.9	399.9	0.8	0.8	135.61	0.0	61.6	65.3	63.7	1.57	41.447		
500.0	499.7	499.7	499.7	1.0	1.0	139.30	0.0	61.6	70.1	68.1	2.04	34.431		
600.0	599.3	599.3	599.3	1.3	1.2	143.66	0.0	61.6	77.3	74.8	2.50	30.865		
700.0	698.6	698.6	698.6	1.6	1.5	148.16	0.0	61.6	87.0	84.1	2.98	29.248		
800.0	797.5	797.5	797.5	1.9	1.7	152.43	0.0	61.6	99.5	96.1	3.45	28.853		
879.3	875.8	877.4	877.4	2.2	1.9	155.28	0.7	61.3	110.9	107.1	3.83	28.978		

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-203	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		
900.0	896.1	898.3	898.3	2.2	1.9	155.90	1.2	61.1	113.9	110.0	3.92	29.033		
1,000.0	994.5	999.7	999.7	2.6	2.1	158.04	4.8	59.5	127.3	122.9	4.39	28.998		
1,100.0	1,092.9	1,101.8	1,101.5	3.0	2.4	159.08	10.8	56.7	138.7	133.8	4.87	28.506		
1,200.0	1,191.4	1,204.4	1,203.6	3.4	2.6	159.30	19.5	52.8	148.1	142.7	5.36	27.643		
1,300.0	1,289.8	1,307.3	1,305.8	3.8	2.9	158.87	30.6	47.7	155.4	149.5	5.87	26.482		
1,400.0	1,388.2	1,410.5	1,407.9	4.1	3.2	157.85	44.3	41.5	160.6	154.2	6.40	25.083		
1,500.0	1,486.6	1,512.7	1,508.6	4.5	3.5	156.31	60.2	34.2	163.9	156.9	6.97	23.525		
1,600.0	1,585.1	1,612.5	1,606.8	4.9	3.8	154.70	76.4	26.9	166.8	159.3	7.55	22.090		
1,700.0	1,683.5	1,712.4	1,705.1	5.3	4.1	153.16	92.6	19.5	169.9	161.7	8.16	20.823		
1,800.0	1,781.9	1,812.2	1,803.3	5.7	4.5	151.66	108.7	12.1	173.0	164.2	8.78	19.705		
1,900.0	1,880.3	1,912.1	1,901.6	6.1	4.8	150.22	124.9	4.8	176.3	166.9	9.42	18.711		
2,000.0	1,978.7	2,011.9	1,999.9	6.5	5.2	148.84	141.1	-2.6	179.7	169.6	10.08	17.826		
2,100.0	2,077.2	2,111.8	2,098.1	6.9	5.6	147.51	157.2	-10.0	183.2	172.4	10.75	17.035		
2,200.0	2,175.6	2,211.6	2,196.4	7.3	6.0	146.22	173.4	-17.3	186.8	175.3	11.44	16.327		
2,300.0	2,274.0	2,311.5	2,294.6	7.7	6.3	144.99	189.6	-24.7	190.4	178.3	12.14	15.690		
2,400.0	2,372.4	2,411.3	2,392.9	8.1	6.7	143.80	205.7	-32.0	194.2	181.4	12.85	15.116		
2,500.0	2,470.9	2,511.2	2,491.1	8.5	7.1	142.66	221.9	-39.4	198.0	184.5	13.57	14.597		
2,600.0	2,569.3	2,611.0	2,589.4	8.9	7.5	141.56	238.1	-46.8	202.0	187.7	14.30	14.127		
2,700.0	2,667.7	2,710.9	2,687.6	9.3	7.9	140.51	254.2	-54.1	205.9	190.9	15.03	13.699		
2,800.0	2,766.1	2,810.7	2,785.9	9.7	8.2	139.49	270.4	-61.5	210.0	194.2	15.78	13.310		
2,900.0	2,864.6	2,910.6	2,884.2	10.1	8.6	138.52	286.6	-68.8	214.1	197.6	16.53	12.954		
3,000.0	2,963.0	3,010.4	2,982.4	10.5	9.0	137.58	302.7	-76.2	218.3	201.0	17.29	12.627		
3,100.0	3,061.4	3,110.3	3,080.7	10.9	9.4	136.67	318.9	-83.6	222.5	204.5	18.05	12.328		
3,200.0	3,159.8	3,210.1	3,178.9	11.3	9.8	135.80	335.1	-90.9	226.8	208.0	18.82	12.053		
3,300.0	3,258.2	3,310.0	3,277.2	11.7	10.2	134.97	351.2	-98.3	231.2	211.6	19.59	11.799		
3,400.0	3,356.7	3,409.8	3,375.4	12.1	10.6	134.16	367.4	-105.6	235.5	215.2	20.37	11.564		
3,500.0	3,455.1	3,509.7	3,473.7	12.5	11.0	133.38	383.6	-113.0	240.0	218.8	21.15	11.347		
3,600.0	3,553.5	3,609.5	3,572.0	12.9	11.4	132.63	399.7	-120.4	244.4	222.5	21.93	11.145		
3,700.0	3,651.9	3,709.4	3,670.2	13.3	11.7	131.91	415.9	-127.7	249.0	226.2	22.72	10.958		
3,800.0	3,750.4	3,809.2	3,768.5	13.7	12.1	131.22	432.1	-135.1	253.5	230.0	23.51	10.784		
3,900.0	3,848.8	3,909.1	3,866.7	14.1	12.5	130.55	448.3	-142.5	258.1	233.8	24.30	10.622		
4,000.0	3,947.2	4,008.9	3,965.0	14.5	12.9	129.90	464.4	-149.8	262.7	237.6	25.09	10.470		
4,100.0	4,045.6	4,108.8	4,063.2	14.9	13.3	129.27	480.6	-157.2	267.4	241.5	25.89	10.328		
4,200.0	4,144.0	4,208.6	4,161.5	15.3	13.7	128.67	496.8	-164.5	272.1	245.4	26.68	10.195		
4,300.0	4,242.5	4,308.5	4,259.8	15.7	14.1	128.09	512.9	-171.9	276.8	249.3	27.48	10.070		
4,400.0	4,340.9	4,408.3	4,358.0	16.1	14.5	127.52	529.1	-179.3	281.5	253.2	28.28	9.953		
4,500.0	4,439.3	4,508.2	4,456.3	16.5	14.9	126.98	545.3	-186.6	286.3	257.2	29.08	9.843		
4,600.0	4,537.7	4,608.0	4,554.5	16.9	15.3	126.45	561.4	-194.0	291.1	261.2	29.88	9.740		
4,700.0	4,636.2	4,707.9	4,652.8	17.3	15.7	125.94	577.6	-201.3	295.9	265.2	30.69	9.642		
4,800.0	4,734.6	4,807.7	4,751.0	17.7	16.1	125.45	593.8	-208.7	300.7	269.2	31.49	9.549		
4,900.0	4,833.0	4,907.6	4,849.3	18.1	16.5	124.97	609.9	-216.1	305.6	273.3	32.30	9.462		
5,000.0	4,931.4	5,007.4	4,947.6	18.5	16.9	124.51	626.1	-223.4	310.5	277.4	33.10	9.379		
5,100.0	5,029.8	5,107.3	5,045.8	18.9	17.3	124.06	642.3	-230.8	315.4	281.5	33.91	9.301		
5,200.0	5,128.3	5,207.1	5,144.1	19.3	17.7	123.62	658.4	-238.1	320.3	285.6	34.71	9.227		
5,300.0	5,226.7	5,307.0	5,242.3	19.7	18.1	123.20	674.6	-245.5	325.2	289.7	35.52	9.157		
5,400.0	5,325.1	5,406.8	5,340.6	20.1	18.5	122.79	690.8	-252.9	330.2	293.8	36.32	9.090		
5,500.0	5,423.5	5,506.7	5,438.8	20.5	18.9	122.39	706.9	-260.2	335.1	298.0	37.13	9.026		
5,600.0	5,522.0	5,605.1	5,535.8	20.9	19.2	122.07	722.5	-267.3	340.2	302.3	37.90	8.978		
5,700.0	5,620.4	5,702.0	5,631.7	21.3	19.5	122.22	735.4	-273.2	346.0	307.5	38.50	8.987		
5,800.0	5,718.8	5,800.0	5,729.0	21.7	19.7	122.90	745.3	-277.7	352.7	313.8	39.00	9.045		
5,900.0	5,817.2	5,894.8	5,823.6	22.1	19.9	124.01	752.0	-280.8	360.4	321.1	39.37	9.154		

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 6E-223 - Wellbore #1 - Plan #1 (4-29-15)													Offset Well Error:	0.0 ft
Survey Program:		0-MWD												
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
6,000.0	5,915.7	5,990.3	5,918.9	22.5	20.1	125.56	756.0	-282.6	369.3	329.7	39.63	9.318		
6,078.8	5,993.2	6,064.8	5,993.5	22.8	20.2	127.03	757.0	-283.0	377.2	337.5	39.75	9.489		
6,100.0	6,014.1	6,085.5	6,014.1	22.9	20.2	127.50	757.0	-283.0	379.5	339.7	39.77	9.542		
6,200.0	6,112.9	6,184.3	6,112.9	23.2	20.3	129.42	757.0	-283.0	389.0	349.2	39.83	9.767		
6,300.0	6,212.2	6,283.6	6,212.2	23.4	20.5	130.84	757.0	-283.0	396.7	356.7	39.93	9.933		
6,400.0	6,311.9	6,383.2	6,311.9	23.6	20.6	131.82	757.0	-283.0	402.1	362.1	40.08	10.035		
6,500.0	6,411.7	6,483.1	6,411.7	23.8	20.8	132.37	757.0	-283.0	405.4	365.1	40.26	10.070		
6,588.3	6,500.0	6,571.4	6,500.0	23.9	20.9	90.28	757.0	-283.0	406.3	365.9	40.45	10.044		
6,600.0	6,511.7	6,583.1	6,511.7	23.9	20.9	90.28	757.0	-283.0	406.3	365.8	40.49	10.036		
6,700.0	6,611.7	6,683.1	6,611.7	24.1	21.1	90.28	757.0	-283.0	406.3	365.5	40.79	9.961		
6,800.0	6,711.7	6,783.1	6,711.7	24.2	21.2	90.28	757.0	-283.0	406.3	365.2	41.09	9.887		
6,900.0	6,811.7	6,883.1	6,811.7	24.3	21.4	90.28	757.0	-283.0	406.3	364.9	41.40	9.814		
6,946.4	6,858.2	6,929.5	6,858.2	24.4	21.5	90.28	757.0	-283.0	406.3	364.8	41.55	9.780		
6,969.7	6,881.4	6,952.8	6,881.4	24.4	21.5	90.28	757.0	-283.0	406.3	364.7	41.62	9.763		
7,000.0	6,911.7	6,983.0	6,911.6	24.4	21.5	-89.72	756.4	-283.0	406.3	364.6	41.69	9.746		
7,050.0	6,961.6	7,032.9	6,961.4	24.5	21.6	-89.72	752.8	-283.0	406.3	364.6	41.75	9.732		
7,100.0	7,011.1	7,082.8	7,010.8	24.5	21.6	-89.72	746.0	-283.0	406.3	364.6	41.74	9.734		
7,150.0	7,060.1	7,132.6	7,059.6	24.4	21.5	-89.73	735.9	-283.0	406.3	364.6	41.67	9.749		
7,200.0	7,108.3	7,182.5	7,107.7	24.4	21.5	-89.73	722.7	-283.0	406.3	364.8	41.55	9.779		
7,250.0	7,155.5	7,232.4	7,154.8	24.3	21.4	-89.74	706.4	-283.0	406.3	364.9	41.37	9.821		
7,300.0	7,201.5	7,282.3	7,200.8	24.2	21.3	-89.74	687.0	-283.0	406.3	365.2	41.14	9.875		
7,350.0	7,246.2	7,332.2	7,245.4	24.1	21.1	-89.75	664.7	-283.0	406.3	365.4	40.87	9.940		
7,400.0	7,289.3	7,382.0	7,288.4	23.9	21.0	-89.76	639.5	-283.0	406.3	365.7	40.57	10.015		
7,450.0	7,330.7	7,431.9	7,329.7	23.8	20.8	-89.77	611.6	-283.0	406.3	366.1	40.24	10.097		
7,500.0	7,370.1	7,481.8	7,369.2	23.6	20.7	-89.78	581.0	-283.0	406.3	366.4	39.89	10.184		
7,550.0	7,407.5	7,531.7	7,406.5	23.5	20.5	-89.79	547.9	-283.0	406.3	366.8	39.54	10.276		
7,600.0	7,442.6	7,581.6	7,441.6	23.3	20.3	-89.81	512.4	-283.0	406.3	367.1	39.19	10.368		
7,650.0	7,475.3	7,631.6	7,474.3	23.1	20.1	-89.82	474.8	-283.0	406.3	367.5	38.85	10.459		
7,700.0	7,505.4	7,681.5	7,504.5	22.9	19.9	-89.84	435.0	-283.0	406.3	367.8	38.53	10.544		
7,750.0	7,532.9	7,731.4	7,532.0	22.7	19.7	-89.85	393.4	-283.0	406.3	368.1	38.25	10.622		
7,800.0	7,557.6	7,781.3	7,556.8	22.5	19.6	-89.87	350.0	-283.0	406.3	368.3	38.01	10.688		
7,850.0	7,579.4	7,831.3	7,578.7	22.3	19.4	-89.88	305.1	-283.0	406.3	368.5	37.83	10.739		
7,900.0	7,598.2	7,881.2	7,597.6	22.1	19.3	-89.90	258.9	-283.0	406.3	368.6	37.72	10.773		
7,950.0	7,614.0	7,931.2	7,613.4	22.0	19.2	-89.92	211.5	-283.0	406.3	368.6	37.67	10.786		
8,000.0	7,626.6	7,981.1	7,626.1	21.8	19.1	-89.94	163.2	-283.0	406.3	368.6	37.70	10.778		
8,028.7	7,632.4	8,009.8	7,632.0	21.7	19.1	-89.95	135.1	-283.0	406.3	368.5	37.76	10.761		
8,050.0	7,636.0	8,031.1	7,635.6	21.6	19.0	-89.95	114.2	-283.0	406.3	368.5	37.81	10.746		
8,100.0	7,642.2	8,081.1	7,642.0	21.5	19.0	-89.97	64.6	-283.0	406.3	368.3	38.00	10.691		
8,150.0	7,645.1	8,131.1	7,645.0	21.3	19.1	-89.99	14.7	-283.0	406.3	368.0	38.28	10.614		
8,175.8	7,645.3	8,156.9	7,645.3	21.3	19.1	-90.00	-11.1	-283.0	406.3	367.8	38.45	10.567		
8,200.0	7,645.1	8,181.1	7,645.1	21.2	19.2	-90.00	-35.3	-283.0	406.3	367.7	38.64	10.515		
8,300.0	7,644.3	8,281.1	7,644.3	21.1	19.6	-90.00	-135.3	-283.0	406.3	366.7	39.64	10.250		
8,400.0	7,643.5	8,381.1	7,643.5	21.3	20.3	-90.00	-235.3	-283.0	406.3	365.3	40.96	9.919		
8,500.0	7,642.7	8,481.1	7,642.7	22.2	21.2	-90.00	-335.3	-283.0	406.3	363.7	42.59	9.540		
8,600.0	7,641.9	8,581.1	7,641.9	23.2	22.2	-90.00	-435.3	-283.0	406.3	361.8	44.49	9.133		
8,700.0	7,641.1	8,681.1	7,641.1	24.3	23.3	-90.00	-535.3	-283.0	406.3	359.7	46.62	8.714		
8,800.0	7,640.3	8,781.1	7,640.3	25.5	24.5	-90.00	-635.3	-283.0	406.3	357.3	48.97	8.297		
8,900.0	7,639.5	8,881.1	7,639.5	26.8	25.8	-90.00	-735.3	-283.0	406.3	354.8	51.49	7.891		
9,000.0	7,638.7	8,981.1	7,638.7	28.1	27.1	-90.00	-835.3	-283.0	406.3	352.1	54.16	7.501		
9,100.0	7,637.9	9,081.1	7,637.9	29.5	28.6	-90.00	-935.3	-283.0	406.3	349.3	56.97	7.132		
9,200.0	7,637.1	9,181.1	7,637.1	31.0	30.0	-90.00	-1,035.3	-283.0	406.3	346.4	59.89	6.784		

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Corcilius 1S67W6J Pad Sec.6-T1S-R67W - Corcilius 6E-223 - Wellbore #1 - Plan #1 (4-29-15)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,300.0	7,636.3	9,281.1	7,636.3	32.5	31.6	-90.00	-1,135.3	-283.0	406.3	343.4	62.91	6.459		
9,400.0	7,635.5	9,381.1	7,635.5	34.0	33.1	-90.00	-1,235.2	-283.0	406.3	340.3	66.01	6.155		
9,500.0	7,634.7	9,481.1	7,634.7	35.6	34.7	-90.00	-1,335.2	-283.0	406.3	337.1	69.19	5.873		
9,600.0	7,633.9	9,581.1	7,633.9	37.2	36.3	-90.00	-1,435.2	-283.0	406.3	333.9	72.43	5.610		
9,700.0	7,633.1	9,681.1	7,633.1	38.8	38.0	-90.00	-1,535.2	-283.0	406.3	330.6	75.72	5.366		
9,800.0	7,632.3	9,781.1	7,632.3	40.5	39.7	-90.00	-1,635.2	-283.0	406.3	327.2	79.06	5.139		
9,900.0	7,631.5	9,881.1	7,631.5	42.1	41.4	-90.00	-1,735.2	-283.0	406.3	323.9	82.45	4.928		
10,000.0	7,630.7	9,981.1	7,630.7	43.8	43.1	-90.00	-1,835.2	-283.0	406.3	320.4	85.87	4.732		
10,100.0	7,629.9	10,081.1	7,629.9	45.5	44.8	-90.00	-1,935.2	-283.0	406.3	317.0	89.32	4.549		
10,200.0	7,629.0	10,181.1	7,629.0	47.2	46.6	-90.00	-2,035.2	-283.0	406.3	313.5	92.81	4.378		
10,300.0	7,628.2	10,281.1	7,628.2	49.0	48.3	-90.00	-2,135.2	-283.0	406.3	310.0	96.32	4.218		
10,400.0	7,627.4	10,381.1	7,627.4	50.7	50.1	-90.00	-2,235.2	-283.0	406.3	306.5	99.85	4.069		
10,500.0	7,626.6	10,481.1	7,626.6	52.5	51.9	-90.00	-2,335.2	-283.0	406.3	302.9	103.41	3.929		
10,600.0	7,625.8	10,581.1	7,625.8	54.2	53.6	-90.00	-2,435.2	-283.0	406.3	299.3	106.98	3.798		
10,700.0	7,625.0	10,681.1	7,625.0	56.0	55.4	-90.00	-2,535.2	-283.0	406.3	295.7	110.57	3.675		
10,800.0	7,624.2	10,781.1	7,624.2	57.8	57.2	-90.00	-2,635.2	-283.0	406.3	292.1	114.18	3.559		
10,900.0	7,623.4	10,881.1	7,623.4	59.6	59.0	-90.00	-2,735.2	-283.0	406.3	288.5	117.80	3.449		
11,000.0	7,622.6	10,981.1	7,622.6	61.4	60.9	-90.00	-2,835.2	-283.0	406.3	284.9	121.43	3.346		
11,100.0	7,621.8	11,081.1	7,621.8	63.2	62.7	-90.00	-2,935.2	-283.0	406.3	281.2	125.08	3.248		
11,200.0	7,621.0	11,181.1	7,621.0	65.0	64.5	-90.00	-3,035.2	-283.0	406.3	277.6	128.73	3.156		
11,300.0	7,620.2	11,281.1	7,620.2	66.8	66.3	-90.00	-3,135.2	-283.0	406.3	273.9	132.40	3.069		
11,400.0	7,619.4	11,381.1	7,619.4	68.6	68.2	-90.00	-3,235.2	-283.0	406.3	270.2	136.07	2.986		
11,500.0	7,618.6	11,481.1	7,618.6	70.5	70.0	-90.00	-3,335.2	-283.0	406.3	266.6	139.76	2.907		
11,600.0	7,617.8	11,581.1	7,617.8	72.3	71.9	-90.00	-3,435.2	-283.0	406.3	262.9	143.45	2.832		
11,700.0	7,617.0	11,681.1	7,617.0	74.1	73.7	-90.00	-3,535.2	-283.0	406.3	259.2	147.15	2.761		
11,800.0	7,616.2	11,781.1	7,616.2	76.0	75.6	-90.00	-3,635.2	-283.0	406.3	255.5	150.85	2.693		
11,900.0	7,615.4	11,881.1	7,615.4	77.8	77.4	-90.00	-3,735.2	-283.0	406.3	251.7	154.56	2.629		
11,949.8	7,615.0	11,930.8	7,615.0	78.7	78.2	-90.00	-3,784.9	-283.0	406.3	250.0	156.29	2.600 SF		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-203	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		
3.0	3.0	3.0	3.0	0.0	0.0	90.00	0.0	30.8	30.8	30.8	0.00	8,184.548		
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	30.8	30.8	30.6	0.22	139.203		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	30.8	30.8	30.1	0.67	45.935 CC, ES		
300.0	300.0	300.0	300.0	0.6	0.6	133.99	0.0	30.8	31.7	30.6	1.12	28.292		
400.0	399.9	399.9	399.9	0.8	0.8	138.65	0.0	30.8	34.6	33.0	1.58	21.931		
500.0	499.7	500.4	500.4	1.0	1.0	143.56	1.1	30.1	38.8	36.7	2.03	19.061		
600.0	599.3	601.1	601.0	1.3	1.2	147.07	4.4	27.9	43.4	40.9	2.49	17.402		
700.0	698.6	701.9	701.6	1.6	1.5	149.51	9.9	24.1	48.4	45.4	2.96	16.315		
800.0	797.5	802.8	802.0	1.9	1.7	151.14	17.6	18.9	53.6	50.1	3.45	15.537		
879.3	875.8	883.0	881.7	2.2	1.9	151.99	25.3	13.7	57.9	54.0	3.85	15.045		
900.0	896.1	903.8	902.4	2.2	2.0	152.14	27.5	12.2	59.0	55.0	3.95	14.925		
1,000.0	994.5	1,005.1	1,002.5	2.6	2.3	151.93	39.6	4.0	63.0	58.5	4.48	14.060		
1,100.0	1,092.9	1,106.2	1,102.2	3.0	2.6	150.37	53.9	-5.6	64.8	59.8	5.04	12.857		
1,200.0	1,191.4	1,206.2	1,200.5	3.4	3.0	148.36	68.8	-15.7	66.0	60.4	5.64	11.699		
1,300.0	1,289.8	1,306.1	1,298.9	3.8	3.4	146.43	83.8	-25.8	67.2	61.0	6.27	10.731		
1,400.0	1,388.2	1,406.1	1,397.2	4.1	3.7	144.57	98.7	-35.9	68.6	61.6	6.92	9.914		
1,500.0	1,486.6	1,506.1	1,495.5	4.5	4.1	142.78	113.6	-46.0	69.9	62.4	7.59	9.222		
1,600.0	1,585.1	1,606.0	1,593.8	4.9	4.5	141.07	128.5	-56.1	71.4	63.1	8.27	8.629		
1,700.0	1,683.5	1,706.0	1,692.2	5.3	4.9	139.42	143.5	-66.2	72.9	63.9	8.98	8.118		
1,800.0	1,781.9	1,806.0	1,790.5	5.7	5.3	137.84	158.4	-76.3	74.5	64.8	9.70	7.675		
1,900.0	1,880.3	1,905.9	1,888.8	6.1	5.7	136.33	173.3	-86.4	76.1	65.7	10.44	7.289		
2,000.0	1,978.7	2,005.9	1,987.2	6.5	6.1	134.88	188.3	-96.5	77.8	66.6	11.19	6.951		
2,100.0	2,077.2	2,105.9	2,085.5	6.9	6.5	133.49	203.2	-106.6	79.5	67.6	11.95	6.653		
2,200.0	2,175.6	2,205.8	2,183.8	7.3	6.9	132.17	218.1	-116.7	81.3	68.6	12.72	6.390		
2,300.0	2,274.0	2,305.8	2,282.1	7.7	7.3	130.90	233.1	-126.8	83.1	69.6	13.50	6.156		
2,400.0	2,372.4	2,405.8	2,380.5	8.1	7.7	129.68	248.0	-136.9	84.9	70.6	14.28	5.947		
2,500.0	2,470.9	2,505.7	2,478.8	8.5	8.1	128.52	262.9	-147.0	86.8	71.7	15.07	5.759		
2,600.0	2,569.3	2,605.7	2,577.1	8.9	8.5	127.41	277.8	-157.1	88.7	72.9	15.87	5.591		
2,700.0	2,667.7	2,705.7	2,675.5	9.3	8.9	126.34	292.8	-167.2	90.7	74.0	16.67	5.439		
2,800.0	2,766.1	2,805.6	2,773.8	9.7	9.3	125.32	307.7	-177.3	92.7	75.2	17.48	5.301		
2,900.0	2,864.6	2,905.6	2,872.1	10.1	9.7	124.34	322.6	-187.4	94.7	76.4	18.29	5.176		
3,000.0	2,963.0	3,005.6	2,970.4	10.5	10.1	123.41	337.6	-197.5	96.7	77.6	19.10	5.062		
3,100.0	3,061.4	3,105.5	3,068.8	10.9	10.5	122.51	352.5	-207.6	98.8	78.8	19.92	4.958		
3,200.0	3,159.8	3,205.5	3,167.1	11.3	10.9	121.65	367.4	-217.7	100.8	80.1	20.74	4.863		
3,300.0	3,258.2	3,305.5	3,265.4	11.7	11.3	120.82	382.3	-227.8	103.0	81.4	21.56	4.776		
3,400.0	3,356.7	3,405.5	3,363.8	12.1	11.7	120.03	397.3	-237.9	105.1	82.7	22.38	4.696		
3,500.0	3,455.1	3,505.4	3,462.1	12.5	12.1	119.27	412.2	-248.0	107.2	84.0	23.20	4.621		
3,600.0	3,553.5	3,605.4	3,560.4	12.9	12.5	118.54	427.1	-258.1	109.4	85.4	24.03	4.553		
3,700.0	3,651.9	3,705.4	3,658.7	13.3	12.9	117.83	442.1	-268.2	111.6	86.7	24.85	4.490		
3,800.0	3,750.4	3,805.3	3,757.1	13.7	13.3	117.16	457.0	-278.3	113.8	88.1	25.68	4.431		
3,900.0	3,848.8	3,905.3	3,855.4	14.1	13.7	116.51	471.9	-288.4	116.0	89.5	26.50	4.376		
4,000.0	3,947.2	4,005.3	3,953.7	14.5	14.1	115.88	486.8	-298.5	118.2	90.9	27.33	4.325		
4,100.0	4,045.6	4,105.2	4,052.1	14.9	14.5	115.28	501.8	-308.6	120.4	92.3	28.16	4.278		
4,200.0	4,144.0	4,205.2	4,150.4	15.3	14.9	114.70	516.7	-318.7	122.7	93.7	28.98	4.233		
4,300.0	4,242.5	4,305.2	4,248.7	15.7	15.3	114.14	531.6	-328.8	125.0	95.1	29.81	4.192		
4,400.0	4,340.9	4,405.1	4,347.0	16.1	15.7	113.60	546.6	-338.9	127.2	96.6	30.64	4.153		
4,500.0	4,439.3	4,505.1	4,445.4	16.5	16.1	113.08	561.5	-349.0	129.5	98.1	31.46	4.116		
4,600.0	4,537.7	4,605.1	4,543.7	16.9	16.5	112.58	576.4	-359.1	131.8	99.5	32.29	4.082		
4,700.0	4,636.2	4,705.0	4,642.0	17.3	16.9	112.09	591.4	-369.2	134.1	101.0	33.12	4.050		
4,800.0	4,734.6	4,805.0	4,740.4	17.7	17.3	111.63	606.3	-379.3	136.4	102.5	33.95	4.019		
4,900.0	4,833.0	4,905.0	4,838.7	18.1	17.7	111.17	621.2	-389.4	138.8	104.0	34.77	3.991		

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-203	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	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)				
5,000.0	4,931.4	5,004.9	4,937.0	18.5	18.1	110.73	636.1	-399.5	141.1	105.5	35.60	3.964			
5,100.0	5,029.8	5,104.9	5,035.3	18.9	18.5	110.31	651.1	-409.6	143.4	107.0	36.43	3.938			
5,200.0	5,128.3	5,204.9	5,133.7	19.3	18.9	109.90	666.0	-419.7	145.8	108.5	37.25	3.914			
5,300.0	5,226.7	5,304.8	5,232.0	19.7	19.3	109.50	680.9	-429.8	148.1	110.1	38.08	3.891			
5,400.0	5,325.1	5,404.8	5,330.3	20.1	19.7	109.12	695.9	-439.9	150.5	111.6	38.90	3.869			
5,500.0	5,423.5	5,504.8	5,428.7	20.5	20.2	108.75	710.8	-450.0	152.9	113.1	39.73	3.848			
5,600.0	5,522.0	5,604.3	5,526.6	20.9	20.5	108.51	725.4	-459.9	155.3	114.8	40.51	3.834			
5,700.0	5,620.4	5,703.2	5,624.4	21.3	20.8	109.31	737.5	-468.1	158.3	117.2	41.09	3.853			
5,800.0	5,718.8	5,801.8	5,722.4	21.7	21.0	111.25	746.8	-474.4	162.1	120.6	41.48	3.908			
5,900.0	5,817.2	5,900.0	5,820.3	22.1	21.2	114.21	753.3	-478.8	166.9	125.3	41.65	4.008			
6,000.0	5,915.7	5,997.2	5,917.4	22.5	21.4	118.01	757.0	-481.3	173.4	131.8	41.58	4.170			
6,078.8	5,993.2	6,073.2	5,993.3	22.8	21.5	121.46	758.0	-482.0	179.9	138.6	41.35	4.351			
6,100.0	6,014.1	6,093.9	6,014.1	22.9	21.5	122.46	758.0	-482.0	181.9	140.6	41.25	4.409			
6,200.0	6,112.9	6,192.8	6,112.9	23.2	21.7	126.44	758.0	-482.0	190.6	149.7	40.85	4.666			
6,300.0	6,212.2	6,292.1	6,212.2	23.4	21.8	129.29	758.0	-482.0	197.8	157.3	40.59	4.874			
6,400.0	6,311.9	6,391.7	6,311.9	23.6	21.9	131.18	758.0	-482.0	203.2	162.7	40.49	5.020			
6,500.0	6,411.7	6,491.6	6,411.7	23.8	22.1	132.23	758.0	-482.0	206.4	165.9	40.52	5.094			
6,588.3	6,500.0	6,579.9	6,500.0	23.9	22.2	90.28	758.0	-482.0	207.4	166.7	40.67	5.098			
6,600.0	6,511.7	6,591.6	6,511.7	23.9	22.2	90.28	758.0	-482.0	207.4	166.7	40.70	5.094			
6,700.0	6,611.7	6,691.6	6,611.7	24.1	22.3	90.28	758.0	-482.0	207.4	166.4	41.00	5.057			
6,800.0	6,711.7	6,791.6	6,711.7	24.2	22.5	90.28	758.0	-482.0	207.4	166.0	41.31	5.020			
6,900.0	6,811.7	6,891.6	6,811.7	24.3	22.6	90.28	758.0	-482.0	207.4	165.7	41.61	4.983			
6,969.7	6,881.4	6,961.2	6,881.4	24.4	22.7	90.28	758.0	-482.0	207.4	165.5	41.83	4.957			
7,000.0	6,911.7	6,991.6	6,911.7	24.4	22.8	-89.89	758.0	-482.0	207.4	165.4	41.95	4.943			
7,008.8	6,920.5	7,000.3	6,920.5	24.4	22.8	-90.00	758.0	-482.0	207.4	165.4	41.99	4.938			
7,050.0	6,961.6	7,041.4	6,961.6	24.5	22.8	-90.88	758.0	-482.0	207.4	165.1	42.29	4.904			
7,100.0	7,011.1	7,091.4	7,011.5	24.5	22.9	-92.56	757.3	-482.0	207.6	164.8	42.72	4.858			
7,150.0	7,060.1	7,141.8	7,061.8	24.4	22.9	-94.28	753.4	-482.0	207.9	164.9	43.08	4.827			
7,200.0	7,108.3	7,192.7	7,112.1	24.4	22.9	-95.99	746.1	-482.0	208.5	165.2	43.34	4.811			
7,250.0	7,155.5	7,244.0	7,162.3	24.3	22.9	-97.66	735.4	-482.0	209.2	165.8	43.49	4.811			
7,300.0	7,201.5	7,295.7	7,212.0	24.2	22.8	-99.30	721.2	-482.0	210.2	166.6	43.53	4.828			
7,350.0	7,246.2	7,347.9	7,261.1	24.1	22.7	-100.88	703.5	-482.0	211.2	167.7	43.46	4.860			
7,400.0	7,289.3	7,400.5	7,309.3	23.9	22.6	-102.42	682.4	-482.0	212.4	169.1	43.27	4.909			
7,450.0	7,330.7	7,453.6	7,356.2	23.8	22.5	-103.88	657.7	-482.0	213.7	170.7	42.97	4.973			
7,500.0	7,370.1	7,507.1	7,401.8	23.6	22.3	-105.28	629.6	-482.0	215.0	172.5	42.57	5.052			
7,550.0	7,407.5	7,561.0	7,445.5	23.5	22.2	-106.60	598.1	-482.0	216.5	174.4	42.08	5.144			
7,600.0	7,442.6	7,615.4	7,487.3	23.3	22.0	-107.84	563.3	-482.0	217.9	176.4	41.52	5.249			
7,650.0	7,475.3	7,670.1	7,526.8	23.1	21.8	-108.99	525.4	-482.0	219.4	178.5	40.91	5.363			
7,700.0	7,505.4	7,725.3	7,563.6	22.9	21.6	-110.04	484.4	-482.0	220.8	180.5	40.26	5.484			
7,750.0	7,532.9	7,780.8	7,597.7	22.7	21.4	-111.00	440.6	-482.0	222.2	182.6	39.62	5.608			
7,800.0	7,557.6	7,836.6	7,628.6	22.5	21.1	-111.86	394.1	-482.0	223.5	184.5	39.00	5.731			
7,850.0	7,579.4	7,892.8	7,656.3	22.3	20.9	-112.62	345.2	-482.0	224.7	186.3	38.43	5.846			
7,900.0	7,598.2	7,949.2	7,680.3	22.1	20.7	-113.27	294.2	-482.0	225.8	187.8	37.95	5.949			
7,950.0	7,614.0	8,005.9	7,700.6	22.0	20.5	-113.82	241.4	-482.0	226.7	189.1	37.57	6.033			
8,000.0	7,626.6	8,062.7	7,717.0	21.8	20.4	-114.26	186.9	-482.0	227.5	190.1	37.33	6.092			
8,050.0	7,636.0	8,119.7	7,729.4	21.6	20.2	-114.59	131.3	-482.0	228.0	190.8	37.25	6.123			
8,100.0	7,642.2	8,176.9	7,737.5	21.5	20.0	-114.82	74.7	-482.0	228.5	191.1	37.32	6.121			
8,150.0	7,645.1	8,234.1	7,741.4	21.3	19.9	-114.93	17.7	-482.0	228.7	191.1	37.57	6.087			
8,175.8	7,645.3	8,263.3	7,741.8	21.3	19.9	-114.95	-11.6	-482.0	228.7	190.9	37.76	6.057			
8,200.0	7,645.1	8,287.5	7,741.6	21.2	19.8	-114.96	-35.8	-482.0	228.7	190.8	37.96	6.025			
8,300.0	7,644.3	8,387.5	7,741.1	21.1	20.0	-115.03	-135.8	-482.0	228.8	189.8	38.99	5.869			

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-203	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-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 +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
8,400.0	7,643.5	8,487.5	7,740.6	21.3	20.6	-115.09	-235.8	-482.0	229.0	188.7	40.30	5.681			
8,500.0	7,642.7	8,587.5	7,740.1	22.2	21.6	-115.15	-335.8	-482.0	229.1	187.2	41.86	5.472			
8,600.0	7,641.9	8,687.5	7,739.5	23.2	22.6	-115.22	-435.8	-482.0	229.2	185.5	43.65	5.251			
8,700.0	7,641.1	8,787.5	7,739.0	24.3	23.7	-115.28	-535.8	-482.0	229.3	183.7	45.64	5.024			
8,800.0	7,640.3	8,887.5	7,738.5	25.5	25.0	-115.34	-635.8	-482.0	229.4	181.6	47.80	4.800			
8,900.0	7,639.5	8,987.5	7,738.0	26.8	26.3	-115.41	-735.8	-482.0	229.6	179.4	50.12	4.580			
9,000.0	7,638.7	9,087.5	7,737.4	28.1	27.6	-115.47	-835.8	-482.0	229.7	177.1	52.56	4.370			
9,100.0	7,637.9	9,187.5	7,736.9	29.5	29.0	-115.53	-935.8	-482.0	229.8	174.7	55.12	4.169			
9,200.0	7,637.1	9,287.5	7,736.4	31.0	30.5	-115.59	-1,035.8	-482.0	229.9	172.1	57.77	3.980			
9,300.0	7,636.3	9,387.5	7,735.9	32.5	32.0	-115.66	-1,135.8	-482.0	230.0	169.5	60.51	3.802			
9,400.0	7,635.5	9,487.5	7,735.3	34.0	33.6	-115.72	-1,235.8	-482.0	230.2	166.8	63.32	3.635			
9,500.0	7,634.7	9,587.5	7,734.8	35.6	35.1	-115.78	-1,335.8	-482.0	230.3	164.1	66.19	3.479			
9,600.0	7,633.9	9,687.5	7,734.3	37.2	36.7	-115.84	-1,435.8	-482.0	230.4	161.3	69.12	3.333			
9,700.0	7,633.1	9,787.5	7,733.8	38.8	38.4	-115.91	-1,535.8	-482.0	230.5	158.4	72.09	3.198			
9,800.0	7,632.3	9,887.5	7,733.3	40.5	40.0	-115.97	-1,635.8	-482.0	230.6	155.5	75.11	3.071			
9,900.0	7,631.5	9,987.5	7,732.7	42.1	41.7	-116.03	-1,735.8	-482.0	230.8	152.6	78.16	2.952			
10,000.0	7,630.7	10,087.5	7,732.2	43.8	43.4	-116.09	-1,835.8	-482.0	230.9	149.6	81.24	2.842			
10,100.0	7,629.9	10,187.5	7,731.7	45.5	45.1	-116.16	-1,935.8	-482.0	231.0	146.7	84.35	2.739			
10,200.0	7,629.0	10,287.5	7,731.2	47.2	46.9	-116.22	-2,035.8	-482.0	231.1	143.6	87.49	2.642			
10,300.0	7,628.2	10,387.5	7,730.6	49.0	48.6	-116.28	-2,135.8	-482.0	231.3	140.6	90.65	2.551			
10,400.0	7,627.4	10,487.5	7,730.1	50.7	50.4	-116.34	-2,235.8	-482.0	231.4	137.6	93.82	2.466			
10,500.0	7,626.6	10,587.5	7,729.6	52.5	52.1	-116.40	-2,335.8	-482.0	231.5	134.5	97.01	2.386			
10,600.0	7,625.8	10,687.5	7,729.1	54.2	53.9	-116.47	-2,435.8	-482.0	231.6	131.4	100.22	2.311			
10,700.0	7,625.0	10,787.5	7,728.5	56.0	55.7	-116.53	-2,535.8	-482.0	231.8	128.3	103.44	2.240			
10,800.0	7,624.2	10,887.5	7,728.0	57.8	57.5	-116.59	-2,635.7	-482.0	231.9	125.2	106.67	2.174			
10,900.0	7,623.4	10,987.5	7,727.5	59.6	59.3	-116.65	-2,735.7	-482.0	232.0	122.1	109.91	2.111			
11,000.0	7,622.6	11,087.5	7,727.0	61.4	61.1	-116.71	-2,835.7	-482.0	232.1	119.0	113.17	2.051			
11,100.0	7,621.8	11,187.5	7,726.4	63.2	62.9	-116.77	-2,935.7	-482.0	232.3	115.8	116.43	1.995			
11,200.0	7,621.0	11,287.5	7,725.9	65.0	64.7	-116.84	-3,035.7	-482.0	232.4	112.7	119.69	1.942			
11,300.0	7,620.2	11,387.5	7,725.4	66.8	66.6	-116.90	-3,135.7	-482.0	232.5	109.5	122.96	1.891			
11,400.0	7,619.4	11,487.5	7,724.9	68.6	68.4	-116.96	-3,235.7	-482.0	232.6	106.4	126.24	1.843			
11,500.0	7,618.6	11,587.5	7,724.4	70.5	70.2	-117.02	-3,335.7	-482.0	232.8	103.2	129.53	1.797			
11,600.0	7,617.8	11,687.5	7,723.8	72.3	72.1	-117.08	-3,435.7	-482.0	232.9	100.1	132.81	1.754			
11,700.0	7,617.0	11,787.5	7,723.3	74.1	73.9	-117.14	-3,535.7	-482.0	233.0	96.9	136.11	1.712			
11,800.0	7,616.2	11,887.5	7,722.8	76.0	75.8	-117.20	-3,635.7	-482.0	233.1	93.7	139.40	1.672			
11,900.0	7,615.4	11,987.5	7,722.3	77.8	77.6	-117.26	-3,735.7	-482.0	233.3	90.6	142.70	1.635			
11,949.8	7,615.0	12,036.7	7,722.0	78.7	78.5	-117.29	-3,784.9	-482.0	233.3	89.0	144.33	1.617 SF			

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Corcilus 1S67W6J Pad Sec.6-T1S-R67W - Corcilus 6J-443 - Wellbore #1 - Plan #1 (4-29-15)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference				Offset			Semi Major Axis		Distance				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
3.0	3.0	2.0	2.0	0.0	0.0	90.00	0.0	89.7	89.7	89.7	0.00	N/A	
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	89.7	89.7	89.4	0.22	407.017	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	89.7	89.7	89.0	0.67	134.078 CC, ES	
300.0	300.0	299.0	299.0	0.6	0.6	132.85	0.0	89.7	90.5	89.4	1.12	80.943	
400.0	399.9	398.9	398.9	0.8	0.8	134.59	0.0	89.7	93.3	91.7	1.57	59.310	
500.0	499.7	498.7	498.7	1.0	1.0	137.26	0.0	89.7	98.0	95.9	2.03	48.180	
600.0	599.3	598.3	598.3	1.3	1.2	140.59	0.0	89.7	104.9	102.4	2.50	41.922	
700.0	698.6	697.6	697.6	1.6	1.5	144.24	0.0	89.7	114.2	111.2	2.98	38.373	
800.0	797.5	796.5	796.5	1.9	1.7	147.94	0.0	89.7	126.2	122.7	3.46	36.513	
879.3	875.8	874.8	874.8	2.2	1.9	150.77	0.0	89.7	137.6	133.8	3.84	35.862	
900.0	896.1	895.1	895.1	2.2	1.9	151.50	0.0	89.7	140.8	136.9	3.93	35.790	
1,000.0	994.5	993.5	993.5	2.6	2.1	154.58	0.0	89.7	156.6	152.2	4.40	35.560	
1,100.0	1,092.9	1,091.9	1,091.9	3.0	2.3	157.09	0.0	89.7	172.8	167.9	4.87	35.460	
1,200.0	1,191.4	1,190.4	1,190.4	3.4	2.6	159.17	0.0	89.7	189.3	183.9	5.34	35.433	
1,300.0	1,289.8	1,288.8	1,288.8	3.8	2.8	160.92	0.0	89.7	205.9	200.1	5.81	35.449	
1,400.0	1,388.2	1,387.2	1,387.2	4.1	3.0	162.41	0.0	89.7	222.8	216.5	6.28	35.489	
1,500.0	1,486.6	1,485.6	1,485.6	4.5	3.2	163.68	0.0	89.7	239.7	233.0	6.74	35.541	
1,600.0	1,585.1	1,584.1	1,584.1	4.9	3.4	164.79	0.0	89.7	256.8	249.5	7.21	35.598	
1,700.0	1,683.5	1,682.6	1,682.6	5.3	3.7	165.63	1.0	89.6	273.3	265.6	7.69	35.547	
1,800.0	1,781.9	1,780.9	1,780.9	5.7	3.9	165.95	4.7	89.3	288.3	280.1	8.17	35.279	
1,900.0	1,880.3	1,879.3	1,879.3	6.1	4.1	165.82	11.3	88.8	301.6	292.9	8.66	34.813	
2,000.0	1,978.7	1,977.7	1,977.7	6.5	4.4	165.28	20.7	88.1	313.3	304.1	9.17	34.170	
2,100.0	2,077.2	2,076.2	2,076.2	6.9	4.6	164.37	33.0	87.2	323.3	313.6	9.69	33.369	
2,200.0	2,175.6	2,174.6	2,174.6	7.3	4.9	163.14	47.9	86.1	331.9	321.6	10.23	32.438	
2,300.0	2,274.0	2,273.0	2,273.0	7.7	5.2	161.89	63.1	85.0	340.1	329.3	10.78	31.538	
2,400.0	2,372.4	2,371.4	2,371.4	8.1	5.4	160.70	78.4	83.9	348.4	337.0	11.35	30.703	
2,500.0	2,470.9	2,469.9	2,469.9	8.5	5.7	159.56	93.6	82.7	356.9	344.9	11.92	29.927	
2,600.0	2,569.3	2,568.3	2,568.3	8.9	6.0	158.48	108.8	81.6	365.5	353.0	12.51	29.204	
2,700.0	2,667.7	2,666.7	2,666.7	9.3	6.3	157.45	124.0	80.5	374.2	361.1	13.12	28.533	
2,800.0	2,766.1	2,765.1	2,765.1	9.7	6.6	156.46	139.3	79.4	383.1	369.3	13.73	27.909	
2,900.0	2,864.6	2,863.6	2,863.6	10.1	6.9	155.52	154.5	78.2	392.0	377.7	14.35	27.327	
3,000.0	2,963.0	2,962.0	2,962.0	10.5	7.2	154.62	169.7	77.1	401.1	386.1	14.97	26.786	
3,100.0	3,061.4	3,060.4	3,060.4	10.9	7.6	153.77	184.9	76.0	410.2	394.6	15.61	26.281	
3,200.0	3,159.8	3,158.8	3,158.8	11.3	7.9	152.94	200.2	74.8	419.5	403.2	16.25	25.811	
3,300.0	3,258.2	3,257.2	3,257.2	11.7	8.2	152.16	215.4	73.7	428.8	411.9	16.90	25.371	
3,400.0	3,356.6	3,355.6	3,355.6	12.1	8.5	151.41	230.6	72.6	438.2	420.6	17.56	24.960	
3,500.0	3,455.1	3,454.1	3,454.1	12.5	8.9	150.69	245.8	71.5	447.7	429.4	18.22	24.575	
3,600.0	3,553.5	3,552.5	3,552.5	12.9	9.2	150.00	261.0	70.3	457.2	438.3	18.88	24.215	
3,700.0	3,651.9	3,650.9	3,650.9	13.3	9.5	149.33	276.3	69.2	466.8	447.2	19.55	23.877	
3,800.0	3,750.4	3,749.4	3,749.4	13.7	9.9	148.70	291.5	68.1	476.5	456.2	20.22	23.559	
3,900.0	3,848.8	3,847.8	3,847.8	14.1	10.2	148.09	306.7	67.0	486.2	465.3	20.90	23.261	
4,000.0	3,947.2	3,946.2	3,946.2	14.5	10.5	147.50	321.9	65.8	495.9	474.4	21.58	22.980	
4,100.0	4,045.6	4,044.6	4,044.6	14.9	10.9	146.94	337.2	64.7	505.8	483.5	22.26	22.716	
4,200.0	4,144.0	4,143.0	4,143.0	15.3	11.2	146.39	352.4	63.6	515.6	492.7	22.95	22.466	
4,300.0	4,242.5	4,241.5	4,241.5	15.7	11.6	145.87	367.6	62.5	525.5	501.9	23.64	22.230	
4,400.0	4,340.9	4,339.9	4,339.9	16.1	11.9	145.37	382.8	61.3	535.5	511.1	24.33	22.008	
4,500.0	4,439.3	4,438.3	4,438.3	16.5	12.3	144.88	398.1	60.2	545.5	520.4	25.03	21.797	
4,600.0	4,537.7	4,536.7	4,536.7	16.9	12.6	144.42	413.3	59.1	555.5	529.8	25.72	21.597	
4,700.0	4,636.2	4,635.2	4,635.2	17.3	12.9	143.97	428.5	58.0	565.6	539.1	26.42	21.408	
4,800.0	4,734.6	4,733.6	4,733.6	17.7	13.3	143.53	443.7	56.8	575.7	548.5	27.12	21.228	
4,900.0	4,833.0	4,832.0	4,832.0	18.1	13.6	143.11	459.0	55.7	585.8	558.0	27.82	21.057	

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-203	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 6J-443 - Wellbore #1 - Plan #1 (4-29-15)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	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)				
5,000.0	4,931.4	4,989.8	4,954.2	18.5	14.0	142.71	474.2	54.6	595.9	567.4	28.52	20.895			
5,100.0	5,029.8	5,089.2	5,052.4	18.9	14.3	142.32	489.4	53.4	606.1	576.9	29.22	20.740			
5,200.0	5,128.3	5,188.6	5,150.6	19.3	14.7	141.94	504.6	52.3	616.3	586.4	29.93	20.593			
5,300.0	5,226.7	5,287.9	5,248.8	19.7	15.0	141.57	519.9	51.2	626.6	595.9	30.64	20.453			
5,400.0	5,325.1	5,387.3	5,347.1	20.1	15.4	141.22	535.1	50.1	636.8	605.5	31.34	20.319			
5,500.0	5,423.5	5,486.7	5,445.3	20.5	15.7	140.87	550.3	48.9	647.1	615.1	32.05	20.191			
5,600.0	5,522.0	5,586.1	5,543.5	20.9	16.1	140.54	565.5	47.8	657.4	624.7	32.76	20.069			
5,700.0	5,620.4	5,685.5	5,641.7	21.3	16.4	140.22	580.8	46.7	667.8	634.3	33.47	19.952			
5,800.0	5,718.8	5,784.9	5,739.9	21.7	16.8	139.90	596.0	45.6	678.1	644.0	34.18	19.840			
5,900.0	5,817.2	5,884.3	5,838.1	22.1	17.1	139.60	611.2	44.4	688.5	653.6	34.89	19.732			
6,000.0	5,915.7	5,983.7	5,936.4	22.5	17.5	139.31	626.4	43.3	698.9	663.3	35.60	19.629			
6,078.8	5,993.2	6,062.0	6,013.7	22.8	17.7	139.08	638.4	42.4	707.1	670.9	36.17	19.551			
6,100.0	6,014.1	6,083.1	6,034.6	22.9	17.8	139.04	641.7	42.2	709.2	672.9	36.32	19.529			
6,200.0	6,112.9	6,182.6	6,132.9	23.2	18.2	138.75	656.9	41.1	717.8	680.8	36.99	19.404			
6,300.0	6,212.2	6,282.2	6,231.3	23.4	18.5	138.25	672.1	39.9	723.8	686.1	37.66	19.220			
6,400.0	6,311.9	6,381.6	6,329.6	23.6	18.9	137.54	687.4	38.8	727.3	689.0	38.31	18.983			
6,500.0	6,411.7	6,480.9	6,427.7	23.8	19.2	136.62	702.6	37.7	728.4	689.4	38.96	18.697			
6,588.3	6,500.0	6,568.3	6,514.0	23.9	19.5	93.39	716.0	36.7	727.4	687.9	39.52	18.408			
6,600.0	6,511.7	6,579.9	6,525.4	23.9	19.6	93.25	717.7	36.6	727.2	687.6	39.60	18.365			
6,700.0	6,611.7	6,676.9	6,621.5	24.1	19.9	92.14	731.9	35.5	725.4	685.2	40.23	18.031			
6,800.0	6,711.7	6,773.7	6,717.6	24.2	20.1	91.26	743.1	34.7	724.2	683.5	40.76	17.768			
6,900.0	6,811.7	6,871.2	6,814.7	24.3	20.3	90.63	751.0	34.1	723.5	682.3	41.21	17.556			
6,969.7	6,881.4	6,939.3	6,882.7	24.4	20.5	90.35	754.6	33.8	723.2	681.7	41.48	17.434			
7,000.0	6,911.7	6,969.0	6,912.4	24.4	20.5	-89.79	755.7	33.8	723.1	681.5	41.59	17.387			
7,050.0	6,961.6	7,017.9	6,961.3	24.5	20.6	-90.16	756.7	33.7	723.0	681.3	41.75	17.318			
7,063.3	6,974.8	7,030.9	6,974.3	24.5	20.6	-90.29	756.9	33.7	723.0	681.2	41.78	17.303			
7,100.0	7,011.1	7,066.7	7,010.1	24.5	20.7	-90.71	757.0	33.7	723.0	681.1	41.89	17.259			
7,150.0	7,060.1	7,115.6	7,059.1	24.4	20.7	-91.48	757.0	33.7	723.2	681.2	42.04	17.205			
7,200.0	7,108.3	7,163.9	7,107.3	24.4	20.8	-92.46	757.0	33.7	723.7	681.5	42.18	17.159			
7,250.0	7,155.5	7,214.4	7,157.7	24.3	20.9	-93.57	755.2	33.7	724.5	682.3	42.26	17.143			
7,300.0	7,201.5	7,265.8	7,208.9	24.2	20.9	-94.67	749.9	33.7	725.6	683.3	42.27	17.165			
7,350.0	7,246.2	7,318.5	7,260.8	24.1	20.9	-95.77	741.0	33.7	727.0	684.8	42.20	17.225			
7,400.0	7,289.3	7,372.2	7,313.0	23.9	20.8	-96.85	728.2	33.7	728.6	686.6	42.06	17.325			
7,450.0	7,330.7	7,427.3	7,365.4	23.8	20.7	-97.92	711.3	33.7	730.5	688.7	41.83	17.462			
7,500.0	7,370.1	7,483.6	7,417.5	23.6	20.6	-98.96	690.2	33.7	732.6	691.1	41.54	17.636			
7,550.0	7,407.5	7,541.2	7,469.2	23.5	20.5	-99.97	664.6	33.7	734.9	693.7	41.18	17.845			
7,600.0	7,442.6	7,600.3	7,520.0	23.3	20.3	-100.94	634.5	33.7	737.2	696.5	40.76	18.086			
7,650.0	7,475.3	7,660.7	7,569.3	23.1	20.1	-101.87	599.7	33.7	739.7	699.4	40.30	18.354			
7,700.0	7,505.4	7,722.5	7,616.8	22.9	19.9	-102.75	560.2	33.7	742.2	702.4	39.81	18.641			
7,750.0	7,532.9	7,785.6	7,661.9	22.7	19.7	-103.58	516.0	33.7	744.7	705.3	39.32	18.938			
7,800.0	7,557.6	7,850.2	7,704.1	22.5	19.5	-104.34	467.2	33.7	747.0	708.2	38.84	19.234			
7,850.0	7,579.4	7,916.0	7,742.7	22.3	19.3	-105.03	413.9	33.7	749.3	710.9	38.40	19.511			
7,900.0	7,598.2	7,983.0	7,777.1	22.1	19.1	-105.64	356.4	33.6	751.3	713.3	38.03	19.755			
7,950.0	7,614.0	8,051.1	7,806.7	22.0	19.0	-106.16	295.1	33.6	753.1	715.4	37.75	19.949			
8,000.0	7,626.6	8,120.1	7,831.1	21.8	18.9	-106.59	230.6	33.6	754.6	717.0	37.60	20.071			
8,050.0	7,636.0	8,189.9	7,849.8	21.6	18.9	-106.91	163.3	33.6	755.8	718.2	37.58	20.113			
8,100.0	7,642.2	8,260.3	7,862.3	21.5	19.0	-107.14	94.1	33.6	756.6	718.9	37.71	20.063			
8,150.0	7,645.1	8,331.0	7,868.4	21.3	19.2	-107.25	23.7	33.6	757.0	719.0	38.01	19.918			
8,175.8	7,645.3	8,365.8	7,869.0	21.3	19.3	-107.26	-11.1	33.6	757.1	718.9	38.21	19.813			
8,200.0	7,645.1	8,390.0	7,869.0	21.2	19.4	-107.28	-35.3	33.6	757.1	718.7	38.41	19.714			
8,300.0	7,644.3	8,490.0	7,869.0	21.1	19.9	-107.34	-135.3	33.6	757.4	718.0	39.42	19.215			

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-203	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		
8,400.0	7,643.5	8,590.0	7,869.0	21.3	20.6	-107.39	-235.3	33.6	757.6	716.9	40.73	18.601		
8,500.0	7,642.7	8,690.0	7,869.0	22.2	21.4	-107.45	-335.3	33.6	757.9	715.5	42.32	17.907		
8,600.0	7,641.9	8,790.0	7,869.0	23.2	22.4	-107.51	-435.3	33.6	758.1	713.9	44.16	17.166		
8,700.0	7,641.1	8,890.0	7,869.0	24.3	23.5	-107.57	-535.3	33.6	758.3	712.1	46.22	16.406		
8,800.0	7,640.3	8,990.0	7,869.0	25.5	24.6	-107.63	-635.3	33.6	758.6	710.1	48.47	15.650		
8,900.0	7,639.5	9,090.0	7,869.0	26.8	25.9	-107.68	-735.3	33.6	758.8	707.9	50.89	14.912		
9,000.0	7,638.7	9,190.0	7,869.0	28.1	27.2	-107.74	-835.3	33.6	759.1	705.6	53.44	14.203		
9,100.0	7,637.9	9,290.0	7,869.0	29.5	28.6	-107.80	-935.3	33.6	759.3	703.2	56.12	13.530		
9,200.0	7,637.1	9,390.0	7,869.0	31.0	30.1	-107.86	-1,035.3	33.6	759.6	700.7	58.91	12.895		
9,300.0	7,636.3	9,490.0	7,869.0	32.5	31.6	-107.91	-1,135.3	33.6	759.8	698.0	61.78	12.299		
9,400.0	7,635.5	9,590.0	7,869.0	34.0	33.2	-107.97	-1,235.3	33.6	760.1	695.3	64.73	11.742		
9,500.0	7,634.7	9,690.0	7,869.0	35.6	34.8	-108.03	-1,335.3	33.6	760.3	692.6	67.75	11.222		
9,600.0	7,633.9	9,790.0	7,869.0	37.2	36.4	-108.09	-1,435.2	33.6	760.6	689.7	70.83	10.738		
9,700.0	7,633.1	9,889.9	7,869.0	38.8	38.0	-108.15	-1,535.2	33.6	760.8	686.8	73.96	10.287		
9,800.0	7,632.3	9,989.9	7,869.0	40.5	39.7	-108.20	-1,635.2	33.6	761.1	683.9	77.13	9.867		
9,900.0	7,631.5	10,089.9	7,869.0	42.1	41.4	-108.26	-1,735.2	33.6	761.3	681.0	80.34	9.476		
10,000.0	7,630.7	10,189.9	7,869.0	43.8	43.1	-108.32	-1,835.2	33.6	761.6	678.0	83.59	9.111		
10,100.0	7,629.9	10,289.9	7,869.0	45.5	44.8	-108.37	-1,935.2	33.6	761.8	674.9	86.86	8.770		
10,200.0	7,629.0	10,389.9	7,869.0	47.2	46.6	-108.43	-2,035.2	33.6	762.1	671.9	90.17	8.452		
10,300.0	7,628.2	10,489.9	7,869.0	49.0	48.3	-108.49	-2,135.2	33.6	762.3	668.8	93.49	8.154		
10,400.0	7,627.4	10,589.9	7,869.0	50.7	50.1	-108.55	-2,235.2	33.6	762.6	665.7	96.84	7.874		
10,500.0	7,626.6	10,689.9	7,869.0	52.5	51.9	-108.60	-2,335.2	33.6	762.8	662.6	100.21	7.613		
10,600.0	7,625.8	10,789.9	7,869.0	54.2	53.7	-108.66	-2,435.2	33.6	763.1	659.5	103.59	7.366		
10,700.0	7,625.0	10,889.9	7,869.0	56.0	55.4	-108.72	-2,535.2	33.6	763.3	656.3	106.98	7.135		
10,800.0	7,624.2	10,989.9	7,869.0	57.8	57.3	-108.77	-2,635.2	33.6	763.6	653.2	110.39	6.917		
10,900.0	7,623.4	11,089.9	7,869.0	59.6	59.1	-108.83	-2,735.2	33.6	763.8	650.0	113.81	6.711		
11,000.0	7,622.6	11,189.9	7,869.0	61.4	60.9	-108.89	-2,835.2	33.6	764.1	646.9	117.25	6.517		
11,100.0	7,621.8	11,289.9	7,869.0	63.2	62.7	-108.95	-2,935.2	33.6	764.4	643.7	120.69	6.333		
11,200.0	7,621.0	11,389.9	7,869.0	65.0	64.5	-109.00	-3,035.2	33.6	764.6	640.5	124.14	6.160		
11,300.0	7,620.2	11,489.9	7,869.0	66.8	66.4	-109.06	-3,135.2	33.6	764.9	637.3	127.59	5.995		
11,400.0	7,619.4	11,589.9	7,869.0	68.6	68.2	-109.12	-3,235.2	33.6	765.2	634.1	131.06	5.838		
11,500.0	7,618.6	11,689.9	7,869.0	70.5	70.0	-109.17	-3,335.2	33.6	765.4	630.9	134.53	5.690		
11,600.0	7,617.8	11,789.9	7,869.0	72.3	71.9	-109.23	-3,435.2	33.6	765.7	627.7	138.00	5.548		
11,700.0	7,617.0	11,889.9	7,869.0	74.1	73.7	-109.29	-3,535.2	33.6	765.9	624.5	141.48	5.414		
11,800.0	7,616.2	11,989.9	7,869.0	76.0	75.6	-109.34	-3,635.2	33.6	766.2	621.2	144.97	5.285		
11,900.0	7,615.4	12,089.9	7,869.0	77.8	77.4	-109.40	-3,735.2	33.6	766.5	618.0	148.46	5.163		
11,949.8	7,615.0	12,139.6	7,869.0	78.7	78.4	-109.43	-3,784.9	33.6	766.6	616.4	150.19	5.104 SF		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-203	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 - Morrison 16-1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 8087-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,500.0	7,618.6	7,617.6	7,617.6	70.5	152.4	90.23	-3,770.3	-1,566.4	979.1	756.9	222.21	4.406		
11,600.0	7,617.8	7,616.8	7,616.8	72.3	152.3	90.18	-3,770.3	-1,566.4	938.9	714.9	224.04	4.191		
11,700.0	7,617.0	7,616.0	7,616.0	74.1	152.3	90.12	-3,770.3	-1,566.4	908.0	682.2	225.88	4.020		
11,800.0	7,616.2	7,615.2	7,615.2	76.0	152.3	90.07	-3,770.3	-1,566.4	887.4	659.7	227.72	3.897		
11,900.0	7,615.4	7,614.4	7,614.4	77.8	152.3	90.02	-3,770.3	-1,566.4	877.8	648.2	229.56	3.824		
11,935.2	7,615.1	7,614.1	7,614.1	78.5	152.3	90.00	-3,770.3	-1,566.4	877.1	646.9	230.20	3.810 CC		
11,949.8	7,615.0	7,614.0	7,614.0	78.7	152.3	89.99	-3,770.3	-1,566.4	877.2	646.7	230.47	3.806 ES, SF		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-203	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

Existing Wells Sec.6-T1S-R67W - Morrison 9-1 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 8087-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation		Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)		(ft)	
9,900.0	7,631.5	7,621.5	7,621.5	42.1	152.4	90.44	-2,426.1	-1,412.2	999.9	806.3	193.67	5.163	
10,000.0	7,630.7	7,620.7	7,620.7	43.8	152.4	90.38	-2,426.1	-1,412.2	933.6	738.3	195.36	4.779	
10,100.0	7,629.9	7,619.9	7,619.9	45.5	152.4	90.31	-2,426.1	-1,412.2	873.8	676.7	197.07	4.434	
10,200.0	7,629.0	7,619.0	7,619.0	47.2	152.4	90.25	-2,426.1	-1,412.2	821.8	623.0	198.80	4.134	
10,300.0	7,628.2	7,618.2	7,618.2	49.0	152.4	90.19	-2,426.1	-1,412.2	779.2	578.7	200.54	3.886	
10,400.0	7,627.4	7,617.4	7,617.4	50.7	152.3	90.12	-2,426.1	-1,412.2	747.7	545.4	202.29	3.696	
10,500.0	7,626.6	7,616.6	7,616.6	52.5	152.3	90.06	-2,426.1	-1,412.2	728.6	524.5	204.05	3.570	
10,590.9	7,625.9	7,615.9	7,615.9	54.1	152.3	90.00	-2,426.1	-1,412.2	722.9	517.2	205.66	3.515 CC	
10,600.0	7,625.8	7,615.8	7,615.8	54.2	152.3	89.99	-2,426.1	-1,412.2	722.9	517.1	205.82	3.512 ES, SF	
10,700.0	7,625.0	7,615.0	7,615.0	56.0	152.3	89.93	-2,426.1	-1,412.2	731.1	523.5	207.60	3.521	
10,800.0	7,624.2	7,614.2	7,614.2	57.8	152.3	89.87	-2,426.1	-1,412.2	752.5	543.1	209.39	3.594	
10,900.0	7,623.4	7,613.4	7,613.4	59.6	152.3	89.80	-2,426.1	-1,412.2	786.2	575.0	211.18	3.723	
11,000.0	7,622.6	7,612.6	7,612.6	61.4	152.3	89.74	-2,426.1	-1,412.2	830.6	617.6	212.98	3.900	
11,100.0	7,621.8	7,611.8	7,611.8	63.2	152.2	89.68	-2,426.1	-1,412.2	884.1	669.4	214.79	4.116	
11,200.0	7,621.0	7,611.0	7,611.0	65.0	152.2	89.61	-2,426.1	-1,412.2	945.3	728.7	216.60	4.364	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T1S-R67W - Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
3.0	3.0	0.0	0.0	0.0	0.0	-59.03	196.7	-327.8	382.3				
100.0	100.0	90.3	90.3	0.1	0.1	-59.09	196.6	-328.3	382.6	382.4	0.23	1,670.692	
200.0	200.0	191.1	191.1	0.3	0.4	-59.23	196.1	-329.3	383.3	382.6	0.71	542.388	
300.0	300.0	292.6	292.6	0.6	0.6	-17.19	195.4	-330.1	382.3	381.1	1.20	319.678	
400.0	399.9	392.2	392.2	0.8	0.9	-17.49	194.8	-330.5	378.7	377.0	1.69	224.684	
500.0	499.7	489.8	489.8	1.0	1.1	-17.91	194.5	-331.2	372.9	370.8	2.16	172.322	
600.0	599.3	588.3	588.3	1.3	1.4	-18.49	194.4	-332.4	365.2	362.5	2.64	138.071	
700.0	698.6	688.7	688.7	1.6	1.6	-19.33	193.9	-333.8	355.0	351.9	3.14	112.957	
800.0	797.5	789.1	789.0	1.9	1.9	-20.49	192.7	-335.1	342.1	338.5	3.65	93.795	
879.3	875.8	867.4	867.4	2.2	2.1	-21.61	191.6	-336.1	330.1	326.1	4.05	81.517	
900.0	896.1	887.7	887.7	2.2	2.2	-21.91	191.3	-336.3	326.8	322.6	4.15	78.662	
1,000.0	994.5	986.1	986.0	2.6	2.4	-23.44	190.0	-337.5	310.9	306.2	4.67	66.550	
1,100.0	1,092.9	1,083.7	1,083.6	3.0	2.7	-25.06	188.9	-338.6	295.3	290.1	5.20	56.779	
1,200.0	1,191.4	1,181.7	1,181.6	3.4	2.9	-26.81	188.2	-339.8	280.2	274.5	5.74	48.789	
1,300.0	1,289.8	1,280.5	1,280.4	3.8	3.2	-28.74	187.7	-341.0	265.5	259.2	6.30	42.129	
1,400.0	1,388.2	1,379.2	1,379.1	4.1	3.5	-30.90	187.0	-342.1	250.9	244.1	6.88	36.492	
1,500.0	1,486.6	1,478.1	1,478.0	4.5	3.7	-33.33	186.3	-343.1	236.7	229.2	7.47	31.682	
1,600.0	1,585.1	1,576.0	1,575.9	4.9	4.0	-36.01	185.8	-344.0	222.8	214.7	8.08	27.579	
1,700.0	1,683.5	1,674.2	1,674.1	5.3	4.2	-38.98	185.4	-345.2	209.8	201.1	8.70	24.098	
1,800.0	1,781.9	1,772.4	1,772.3	5.7	4.5	-42.25	185.4	-346.4	197.5	188.1	9.35	21.125	
1,900.0	1,880.3	1,870.6	1,870.4	6.1	4.7	-45.89	185.4	-347.9	186.1	176.1	10.01	18.589	
2,000.0	1,978.7	1,969.0	1,968.8	6.5	4.9	-49.93	185.7	-349.5	175.8	165.1	10.70	16.424	
2,100.0	2,077.2	2,067.4	2,067.2	6.9	5.2	-54.42	185.9	-351.2	166.6	155.1	11.43	14.578	
2,200.0	2,175.6	2,165.5	2,165.3	7.3	5.4	-59.39	186.1	-353.1	158.7	146.5	12.18	13.030	
2,300.0	2,274.0	2,263.9	2,263.7	7.7	5.7	-64.87	186.1	-355.3	152.5	139.6	12.96	11.766	
2,400.0	2,372.4	2,362.5	2,362.2	8.1	5.9	-70.76	186.1	-357.6	148.0	134.2	13.75	10.760	
2,500.0	2,470.9	2,461.2	2,460.9	8.5	6.2	-76.86	186.3	-360.0	145.1	130.6	14.53	9.991	
2,600.0	2,569.3	2,560.0	2,559.7	8.9	6.4	-83.08	186.6	-362.5	144.0	128.7	15.26	9.432	
2,618.7	2,587.7	2,578.5	2,578.2	9.0	6.5	-84.25	186.6	-363.0	143.9	128.5	15.40	9.348 CC	
2,700.0	2,667.7	2,659.0	2,658.6	9.3	6.7	-89.24	187.1	-365.0	144.4	128.5	15.95	9.056 ES	
2,800.0	2,766.1	2,757.7	2,757.3	9.7	6.9	-95.17	188.0	-367.6	146.4	129.9	16.58	8.831	
2,900.0	2,864.6	2,856.5	2,856.0	10.1	7.1	-100.88	188.7	-370.3	150.1	133.0	17.16	8.749	
3,000.0	2,963.0	2,955.0	2,954.5	10.5	7.4	-106.35	189.3	-372.9	155.3	137.6	17.69	8.778	
3,100.0	3,061.4	3,053.2	3,052.7	10.9	7.6	-111.68	189.3	-374.9	162.1	144.0	18.18	8.921	
3,200.0	3,159.8	3,151.7	3,151.2	11.3	7.9	-116.79	188.8	-376.3	170.6	151.9	18.62	9.161	
3,300.0	3,258.2	3,250.5	3,250.0	11.7	8.2	-121.54	188.3	-377.3	180.1	161.1	19.02	9.466	
3,400.0	3,356.7	3,349.3	3,348.8	12.1	8.4	-125.89	187.9	-378.0	190.6	171.2	19.40	9.823	
3,500.0	3,455.1	3,448.1	3,447.6	12.5	8.7	-129.83	187.6	-378.4	201.9	182.1	19.77	10.212	
3,600.0	3,553.5	3,547.4	3,546.9	12.9	8.9	-133.37	187.6	-378.8	213.9	193.8	20.11	10.635	
3,700.0	3,651.9	3,647.0	3,646.5	13.3	9.1	-136.57	188.1	-379.1	226.0	205.6	20.38	11.087	
3,800.0	3,750.4	3,745.6	3,745.1	13.7	9.2	-139.45	188.8	-379.2	238.4	217.9	20.60	11.576	
3,900.0	3,848.8	3,843.1	3,842.6	14.1	9.3	-142.04	189.4	-379.2	251.6	230.8	20.84	12.073	
4,000.0	3,947.2	3,940.6	3,940.0	14.5	9.5	-144.33	189.4	-379.3	265.8	244.7	21.17	12.555	
4,100.0	4,045.6	4,039.6	4,039.1	14.9	9.8	-146.40	189.4	-379.5	280.5	258.9	21.57	13.005	
4,200.0	4,144.0	4,139.3	4,138.8	15.3	10.0	-148.16	189.7	-380.3	295.0	273.1	21.97	13.429	
4,300.0	4,242.5	4,238.8	4,238.2	15.7	10.2	-149.72	190.2	-381.3	309.5	287.1	22.37	13.833	
4,400.0	4,340.9	4,337.8	4,337.3	16.1	10.5	-151.11	190.9	-382.6	324.0	301.2	22.78	14.220	
4,500.0	4,439.3	4,436.8	4,436.2	16.5	10.7	-152.33	191.7	-384.1	338.5	315.3	23.21	14.585	
4,600.0	4,537.7	4,536.0	4,535.4	16.9	11.0	-153.40	192.4	-386.0	353.1	329.5	23.65	14.931	
4,700.0	4,636.2	4,635.8	4,635.2	17.3	11.2	-154.33	193.3	-388.4	367.6	343.5	24.11	15.248	
4,800.0	4,734.6	4,735.1	4,734.5	17.7	11.4	-155.17	194.3	-390.8	381.9	357.3	24.56	15.547	

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T1S-R67W - Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
4,900.0	4,833.0	4,834.2	4,833.5	18.1	11.7	-155.98	195.5	-393.2	396.2	371.2	25.02	15.837	
5,000.0	4,931.4	4,932.9	4,932.2	18.5	11.9	-156.73	196.7	-395.4	410.6	385.1	25.47	16.118	
5,100.0	5,029.8	5,031.1	5,030.4	18.9	12.2	-157.43	197.8	-397.7	425.1	399.1	25.93	16.391	
5,200.0	5,128.3	5,129.0	5,128.2	19.3	12.4	-158.05	198.7	-400.0	439.8	413.4	26.40	16.658	
5,300.0	5,226.7	5,226.9	5,226.1	19.7	12.7	-158.59	199.3	-402.6	454.8	427.9	26.89	16.916	
5,400.0	5,325.1	5,323.6	5,322.8	20.1	12.9	-159.10	199.6	-405.0	470.1	442.7	27.37	17.175	
5,500.0	5,423.5	5,418.5	5,417.6	20.5	13.2	-159.66	199.6	-406.5	486.1	458.3	27.85	17.458	
5,600.0	5,522.0	5,515.5	5,514.6	20.9	13.4	-160.25	199.3	-407.3	502.7	474.4	28.32	17.755	
5,700.0	5,620.4	5,613.6	5,612.7	21.3	13.7	-160.84	199.0	-407.8	519.6	490.8	28.77	18.056	
5,800.0	5,718.8	5,712.1	5,711.3	21.7	13.9	-161.42	198.8	-408.1	536.4	507.2	29.23	18.354	
5,900.0	5,817.2	5,808.9	5,808.1	22.1	14.1	-161.95	198.4	-408.4	553.5	523.8	29.66	18.659	
6,000.0	5,915.7	5,909.3	5,908.4	22.5	14.3	-162.46	198.0	-408.8	570.6	540.5	30.12	18.945	
6,078.8	5,993.2	5,987.4	5,986.5	22.8	14.5	-162.83	197.8	-409.1	583.9	553.4	30.50	19.146	
6,100.0	6,014.1	6,008.4	6,007.6	22.9	14.6	-162.95	197.8	-409.2	587.4	556.8	30.61	19.191	
6,200.0	6,112.9	6,107.4	6,106.5	23.2	14.8	-163.40	197.6	-409.8	601.9	570.8	31.08	19.367	
6,300.0	6,212.2	6,207.7	6,206.8	23.4	15.0	-163.77	197.7	-410.0	613.0	581.6	31.44	19.500	
6,400.0	6,311.9	6,307.5	6,306.6	23.6	15.1	-164.05	198.1	-409.9	620.7	589.1	31.66	19.605	
6,500.0	6,411.7	6,406.9	6,406.0	23.8	15.1	-164.24	198.5	-409.6	625.2	593.3	31.81	19.650	
6,588.3	6,500.0	6,496.6	6,495.7	23.9	15.2	-153.44	198.9	-409.3	626.2	594.3	31.93	19.612	
6,600.0	6,511.7	6,508.5	6,507.6	23.9	15.2	-153.43	199.0	-409.3	626.1	594.2	31.96	19.593	
6,700.0	6,611.7	6,609.1	6,608.2	24.1	15.3	-153.38	199.7	-409.0	625.6	593.4	32.21	19.421	
6,781.9	6,693.6	6,687.5	6,686.6	24.2	15.3	-153.32	200.2	-408.5	625.4	593.0	32.39	19.306	
6,800.0	6,711.7	6,705.0	6,704.1	24.2	15.3	-153.30	200.3	-408.3	625.4	592.9	32.43	19.283	
6,900.0	6,811.7	6,804.4	6,803.5	24.3	15.3	-153.21	200.6	-407.4	625.5	592.9	32.62	19.175	
6,969.7	6,881.4	6,873.9	6,873.0	24.4	15.3	-153.15	200.8	-406.7	625.7	592.9	32.75	19.101	
7,000.0	6,911.7	6,904.2	6,903.3	24.4	15.3	-26.92	200.9	-406.4	625.2	592.5	32.69	19.122	
7,050.0	6,961.6	6,954.5	6,953.6	24.5	15.3	-27.23	201.0	-405.9	622.1	589.6	32.48	19.154	
7,100.0	7,011.1	7,004.5	7,003.6	24.5	15.4	-27.79	201.3	-405.3	616.0	583.9	32.12	19.177	
7,150.0	7,060.1	7,054.3	7,053.4	24.4	15.4	-28.63	201.6	-404.7	607.1	575.4	31.65	19.180	
7,200.0	7,108.3	7,103.2	7,102.2	24.4	15.4	-29.76	201.9	-404.2	595.3	564.3	31.07	19.158	
7,250.0	7,155.5	7,148.8	7,147.9	24.3	15.4	-31.16	202.2	-403.7	581.0	550.6	30.42	19.099	
7,300.0	7,201.5	7,193.4	7,192.5	24.2	15.4	-32.91	202.5	-403.1	564.2	534.5	29.72	18.984	
7,350.0	7,246.2	7,237.9	7,237.0	24.1	15.4	-35.08	202.6	-402.5	545.2	516.2	29.03	18.777	
7,400.0	7,289.3	7,281.0	7,280.0	23.9	15.4	-37.71	202.8	-401.9	524.0	495.6	28.43	18.430	
7,450.0	7,330.7	7,322.3	7,321.4	23.8	15.5	-40.85	202.9	-401.4	501.0	473.0	28.01	17.886	
7,500.0	7,370.1	7,361.7	7,360.8	23.6	15.5	-44.57	203.1	-400.8	476.4	448.5	27.87	17.096	
7,550.0	7,407.5	7,398.9	7,398.0	23.5	15.5	-48.88	203.3	-400.2	450.6	422.5	28.08	16.048	
7,600.0	7,442.6	7,433.6	7,432.7	23.3	15.5	-53.75	203.5	-399.7	424.2	395.5	28.68	14.787	
7,650.0	7,475.3	7,466.0	7,465.0	23.1	15.5	-59.12	203.7	-399.1	397.6	368.0	29.63	13.420	
7,700.0	7,505.4	7,495.7	7,494.8	22.9	15.5	-64.82	203.9	-398.6	371.8	341.0	30.79	12.077	
7,750.0	7,532.9	7,523.0	7,522.1	22.7	15.5	-70.61	204.0	-398.2	347.6	315.7	31.97	10.874	
7,800.0	7,557.6	7,547.5	7,546.5	22.5	15.5	-76.19	204.2	-397.8	326.2	293.2	33.00	9.885	
7,850.0	7,579.4	7,569.1	7,568.1	22.3	15.6	-81.23	204.3	-397.4	309.0	275.2	33.77	9.149	
7,900.0	7,598.2	7,587.6	7,586.7	22.1	15.6	-85.46	204.4	-397.1	297.4	263.1	34.27	8.676	
7,950.0	7,614.0	7,603.1	7,602.2	22.0	15.6	-88.70	204.5	-396.8	292.6	258.1	34.55	8.470	
7,956.1	7,615.7	7,604.8	7,603.8	21.9	15.6	-89.02	204.5	-396.8	292.6	258.0	34.57	8.462 SF	
8,000.0	7,626.6	7,615.5	7,614.5	21.8	15.6	-90.81	204.5	-396.6	295.6	260.9	34.69	8.521	
8,050.0	7,636.0	7,624.6	7,623.6	21.6	15.6	-91.72	204.6	-396.5	306.5	271.7	34.78	8.812	
8,100.0	7,642.2	7,630.5	7,629.5	21.5	15.6	-91.40	204.6	-396.4	324.7	289.9	34.86	9.314	
8,150.0	7,645.1	7,633.2	7,632.2	21.3	15.6	-89.81	204.6	-396.3	349.2	314.3	34.93	9.999	
8,175.8	7,645.3	7,633.3	7,632.3	21.3	15.6	-88.49	204.6	-396.3	363.9	329.0	34.93	10.417	

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

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T1S-R67W - Sack 11-6 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
8,200.0	7,645.1	7,632.9	7,632.0	21.2	15.6	-88.42	204.6	-396.3	378.7	343.7	35.02	10.815	
8,300.0	7,644.3	7,631.6	7,630.6	21.1	15.6	-88.16	204.6	-396.4	448.8	413.3	35.48	12.650	
8,400.0	7,643.5	7,630.3	7,629.3	21.3	15.6	-87.90	204.6	-396.4	528.6	492.5	36.10	14.640	
8,500.0	7,642.7	7,628.9	7,628.0	22.2	15.6	-87.64	204.6	-396.4	614.3	577.4	36.88	16.656	
8,600.0	7,641.9	7,627.6	7,626.6	23.2	15.6	-87.38	204.6	-396.4	703.8	666.0	37.79	18.622	
8,700.0	7,641.1	7,626.3	7,625.3	24.3	15.6	-87.12	204.6	-396.4	795.8	757.0	38.82	20.497	
8,800.0	7,640.3	7,624.9	7,623.9	25.5	15.6	-86.85	204.6	-396.5	889.5	849.5	39.96	22.261	
8,900.0	7,639.5	7,623.6	7,622.6	26.8	15.6	-86.59	204.6	-396.5	984.5	943.3	41.18	23.906	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilius 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilius 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilius 6E-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.6-T1S-R67W - Sack 12-6 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,400.0	7,643.5	7,613.5	7,605.0	21.3	16.4	-88.11	-1,135.4	-348.6	962.6	925.8	36.85	26.120		
8,500.0	7,642.7	7,614.1	7,605.7	22.2	16.4	-88.22	-1,135.4	-348.6	869.8	832.2	37.66	23.096		
8,600.0	7,641.9	7,614.7	7,606.3	23.2	16.4	-88.32	-1,135.4	-348.6	778.8	740.2	38.61	20.174		
8,700.0	7,641.1	7,615.3	7,606.9	24.3	16.4	-88.42	-1,135.4	-348.6	690.3	650.6	39.67	17.402		
8,800.0	7,640.3	7,615.9	7,607.5	25.5	16.4	-88.52	-1,135.4	-348.6	605.4	564.5	40.83	14.825		
8,900.0	7,639.5	7,616.5	7,608.0	26.8	16.4	-88.61	-1,135.5	-348.6	525.7	483.7	42.09	12.490		
9,000.0	7,638.7	7,617.0	7,608.6	28.1	16.4	-88.70	-1,135.5	-348.5	454.3	410.8	43.43	10.461		
9,100.0	7,637.9	7,617.5	7,609.1	29.5	16.4	-88.79	-1,135.5	-348.5	395.3	350.5	44.83	8.819		
9,200.0	7,637.1	7,618.0	7,609.6	31.0	16.4	-88.88	-1,135.5	-348.5	355.3	309.0	46.28	7.677		
9,300.0	7,636.3	7,618.5	7,610.1	32.5	16.4	-88.96	-1,135.5	-348.5	340.9	293.1	47.79	7.132		
9,300.3	7,636.3	7,618.5	7,610.1	32.5	16.4	-88.96	-1,135.5	-348.5	340.9	293.1	47.80	7.132 CC, ES, SF		
9,400.0	7,635.5	7,619.0	7,610.6	34.0	16.4	-89.04	-1,135.5	-348.5	355.2	305.8	49.34	7.198		
9,500.0	7,634.7	7,619.5	7,611.0	35.6	16.4	-89.12	-1,135.5	-348.5	395.1	344.1	50.93	7.757		
9,600.0	7,633.9	7,619.9	7,611.5	37.2	16.4	-89.20	-1,135.5	-348.5	453.9	401.3	52.55	8.638		
9,700.0	7,633.1	7,620.4	7,611.9	38.8	16.4	-89.27	-1,135.5	-348.5	525.3	471.1	54.19	9.693		
9,800.0	7,632.3	7,620.8	7,612.4	40.5	16.4	-89.34	-1,135.5	-348.5	604.9	549.0	55.86	10.828		
9,900.0	7,631.5	7,621.2	7,612.8	42.1	16.4	-89.41	-1,135.5	-348.5	689.8	632.3	57.56	11.985		
10,000.0	7,630.7	7,621.6	7,613.2	43.8	16.4	-89.48	-1,135.5	-348.5	778.3	719.1	59.27	13.132		
10,100.0	7,629.9	7,622.0	7,613.6	45.5	16.4	-89.55	-1,135.5	-348.5	869.3	808.3	61.00	14.252		
10,200.0	7,629.0	7,622.4	7,614.0	47.2	16.4	-89.62	-1,135.5	-348.4	962.1	899.4	62.74	15.335		

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5074.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

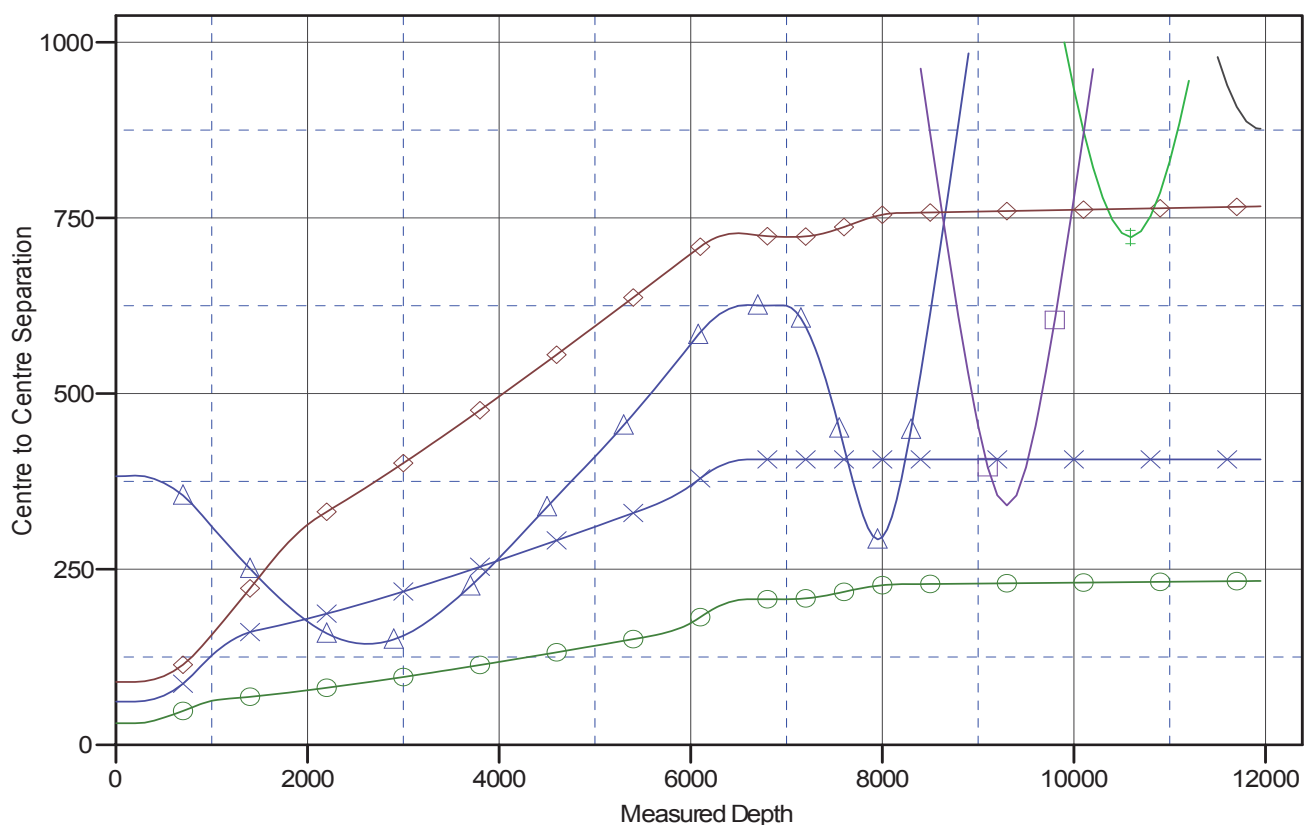
Central Meridian is -105.500000

Coordinates are relative to: Corcilus 6E-203

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.36°

Ladder Plot



LEGEND

Sack 11-6 (Exist), Wellbore #1, Wellbore #1 V0	Sack 12-6 (Exist), Wellbore #1, Wellbore #1 V0	Cordlius6E-223, Wellbore #1, Plan #1 (4-29-15)
Morrison 16-1 (Exist), Wellbore #1, Wellbore #1 V0	Cordlius6E-323, Wellbore #1, Plan #1 (4-29-15) V0	
Morrison 9-1 (Exist), Wellbore #1, Wellbore #1 V0	Cordlius6J-443, Wellbore #1, Plan #1 (4-29-15) V0	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Corcilus 6E-203
Project:	SEC.6-T1S-R67W	TVD Reference:	WELL @ 5074.0ft (RKB - 13')
Reference Site:	Corcilus 1S67W6J Pad Sec.6-T1S-R67W	MD Reference:	WELL @ 5074.0ft (RKB - 13')
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Corcilus 6E-203	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #1 (4-29-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5074.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Corcilus 6E-203

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.36°

