

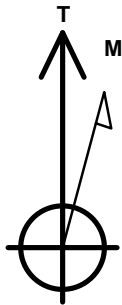
# PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Niles Miller 20T-241**

Surface Location: Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W  
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
 Ground Elevation: 4955.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1317925.67 3197036.81 40.203951-104.794566  
 Original Well Elev WELL @ 4968.0ft (Original Well Elev)

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 304'FSL, 828'FEL	1.0	0.0	0.0	Point
BHL 500'FNL, 1672'FEL	7186.0	4458.5	-883.7	Point
WP (20T-241)	7200.5	3138.9	-823.4	Point



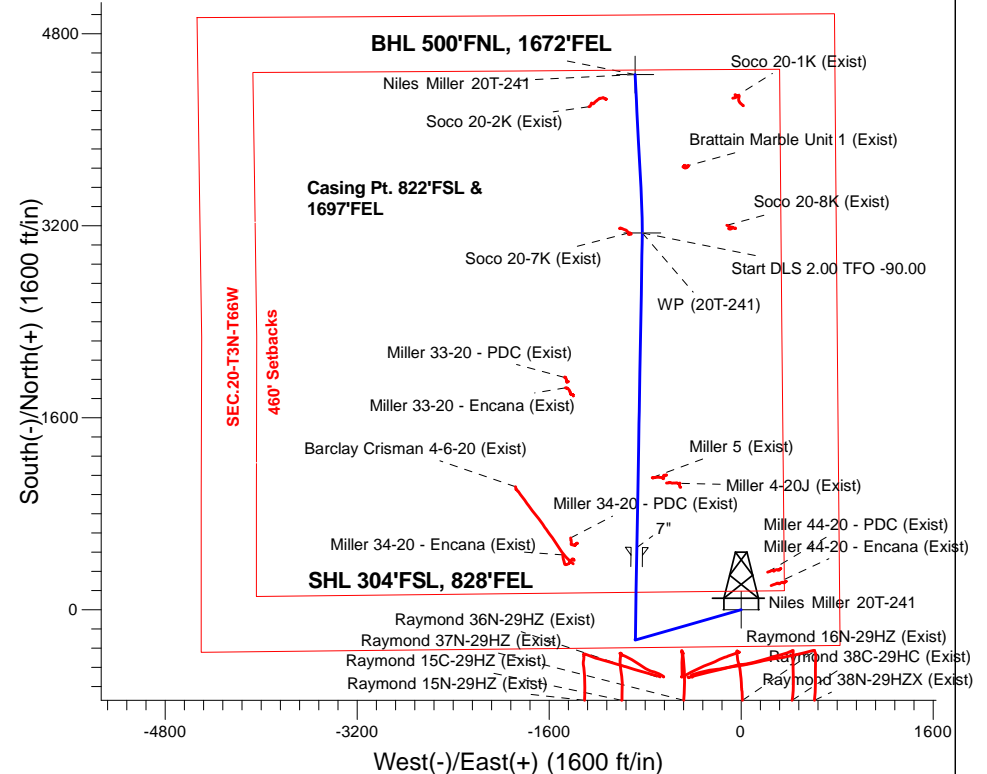
Azimuths to True North  
 Magnetic North: 8.24°

Magnetic Field  
 Strength: 52535.5snT  
 Dip Angle: 66.73°  
 Date: 2/5/2016  
 Model: IGRF2010

## ANNOTATIONS

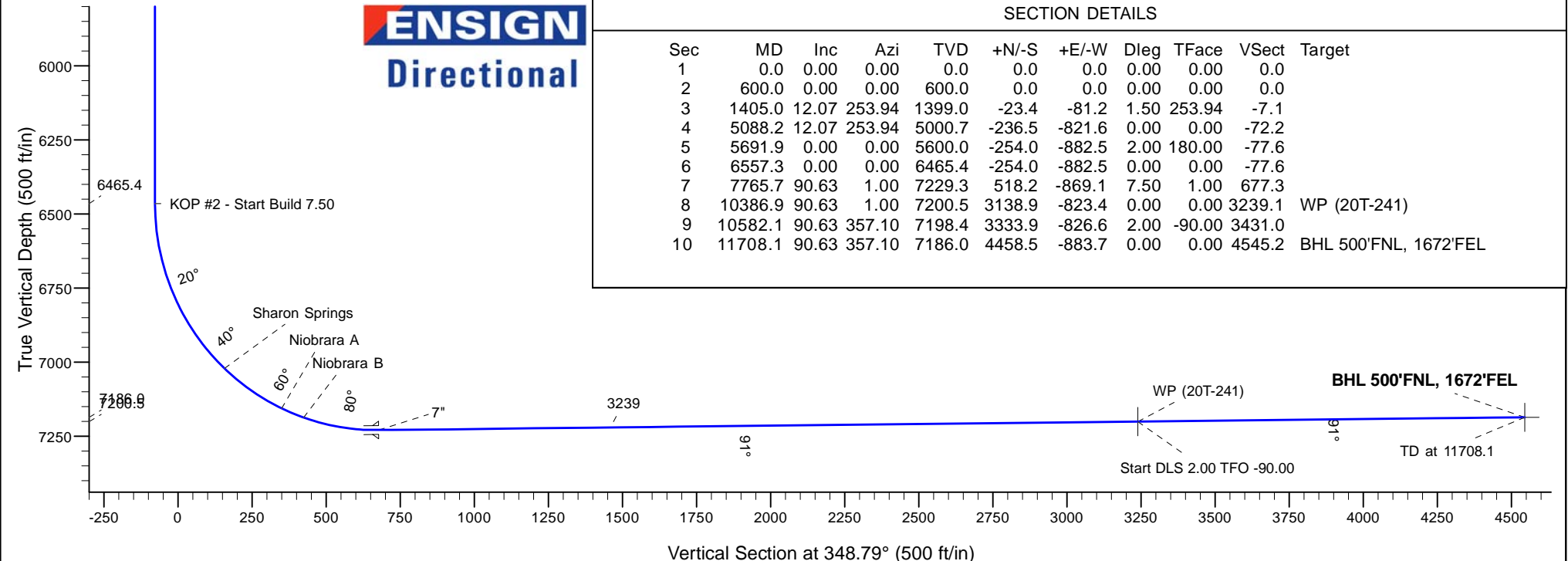
TVD	MD	Annotation
600.0	600.0	KOP - Start Build 1.50
5000.8	5088.2	Start Drop -2.00
6465.4	6557.3	KOP #2 - Start Build 7.50
7200.5	10386.9	Start DLS 2.00 TFO -90.00
7186.0	11708.1	TD at 11708.1

Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W  
 Niles Miller 20T-241  
 Plan #2 (2-5-16)  
 14:39, February 08 2016



## 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	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	1405.0	12.07	253.94	1399.0	-23.4	-81.2	1.50	253.94	-7.1	
4	5088.2	12.07	253.94	5000.7	-236.5	-821.6	0.00	0.00	-72.2	
5	5691.9	0.00	0.00	5600.0	-254.0	-882.5	2.00	180.00	-77.6	
6	6557.3	0.00	0.00	6465.4	-254.0	-882.5	0.00	0.00	-77.6	
7	7765.7	90.63	1.00	7229.3	518.2	-869.1	7.50	1.00	677.3	
8	10386.9	90.63	1.00	7200.5	3138.9	-823.4	0.00	0.00	3239.1	WP (20T-241)
9	10582.1	90.63	357.10	7198.4	3333.9	-826.6	2.00	-90.00	3431.0	
10	11708.1	90.63	357.10	7186.0	4458.5	-883.7	0.00	0.00	4545.2	BHL 500'FNL, 1672'FEL





# Directional

## **PETROLEUM DEVELOPMENT CORP DJ Basin**

**SEC.20-T3N-R66W**

**Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W**

**Niles Miller 20T-241**

**Wellbore #1**

**Plan: Plan #2 (2-5-16)**

## **Standard Planning Report**

**08 February, 2016**

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Project:</b>	SEC.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (2-5-16)		

<b>Project</b>	SEC.20-T3N-R66W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W				
Site Position:		Northing:	1,317,895.72 usft	Latitude:	40.203869
From:	Lat/Long	Easting:	3,197,037.36 usft	Longitude:	-104.794565
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.46

Well	Niles Miller 20T-241					
Well Position	+N/-S	29.9 ft	Northing:	1,317,925.67 usft	Latitude:	40.203952
	+E/-W	-0.3 ft	Easting:	3,197,036.81 usft	Longitude:	-104.794566
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,955.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2/5/2016	8.24	66.73	52,535

<b>Design</b>	Plan #2 (2-5-16)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	348.79

<b>Plan Sections</b>										
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	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,405.0	12.07	253.94	1,399.0	-23.4	-81.2	1.50	1.50	0.00	253.94	
5,088.2	12.07	253.94	5,000.7	-236.5	-821.6	0.00	0.00	0.00	0.00	
5,691.9	0.00	0.00	5,600.0	-254.0	-882.5	2.00	-2.00	0.00	180.00	
6,557.3	0.00	0.00	6,465.4	-254.0	-882.5	0.00	0.00	0.00	0.00	
7,765.7	90.63	1.00	7,229.3	518.2	-869.1	7.50	7.50	0.00	1.00	
10,386.9	90.63	1.00	7,200.5	3,138.9	-823.4	0.00	0.00	0.00	0.00	WP (20T-241)
10,582.1	90.63	357.10	7,198.4	3,333.9	-826.6	2.00	0.00	-2.00	-90.00	
11,708.1	90.63	357.10	7,186.0	4,458.5	-883.7	0.00	0.00	0.00	0.00	BHL 500'FNL, 1672'F

Database:	US_EDM	Local Co-ordinate Reference:	Well Niles Miller 20T-241
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 4968.0ft (Original Well Elev)
Project:	SEC.20-T3N-R66W	MD Reference:	WELL @ 4968.0ft (Original Well Elev)
Site:	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	North Reference:	True
Well:	Niles Miller 20T-241	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (2-5-16)		

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 304°FSL, 828°FEL									
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
KOP - Start Build 1.50									
700.0	1.50	253.94	700.0	-0.4	-1.3	-0.1	1.50	1.50	0.00
800.0	3.00	253.94	799.9	-1.4	-5.0	-0.4	1.50	1.50	0.00
900.0	4.50	253.94	899.7	-3.3	-11.3	-1.0	1.50	1.50	0.00
1,000.0	6.00	253.94	999.3	-5.8	-20.1	-1.8	1.50	1.50	0.00
1,100.0	7.50	253.94	1,098.6	-9.0	-31.4	-2.8	1.50	1.50	0.00
1,200.0	9.00	253.94	1,197.5	-13.0	-45.2	-4.0	1.50	1.50	0.00
1,300.0	10.50	253.94	1,296.1	-17.7	-61.5	-5.4	1.50	1.50	0.00
1,400.0	12.00	253.94	1,394.2	-23.1	-80.2	-7.1	1.50	1.50	0.00
1,405.0	12.07	253.94	1,399.0	-23.4	-81.2	-7.1	1.50	1.50	0.00
1,500.0	12.07	253.94	1,492.0	-28.9	-100.3	-8.8	0.00	0.00	0.00
1,600.0	12.07	253.94	1,589.7	-34.7	-120.4	-10.6	0.00	0.00	0.00
1,700.0	12.07	253.94	1,687.5	-40.4	-140.5	-12.4	0.00	0.00	0.00
1,800.0	12.07	253.94	1,785.3	-46.2	-160.6	-14.1	0.00	0.00	0.00
1,900.0	12.07	253.94	1,883.1	-52.0	-180.7	-15.9	0.00	0.00	0.00
2,000.0	12.07	253.94	1,980.9	-57.8	-200.8	-17.7	0.00	0.00	0.00
2,100.0	12.07	253.94	2,078.7	-63.6	-220.9	-19.4	0.00	0.00	0.00
2,200.0	12.07	253.94	2,176.5	-69.4	-241.0	-21.2	0.00	0.00	0.00
2,300.0	12.07	253.94	2,274.3	-75.2	-261.1	-23.0	0.00	0.00	0.00
2,400.0	12.07	253.94	2,372.0	-80.9	-281.2	-24.7	0.00	0.00	0.00
2,500.0	12.07	253.94	2,469.8	-86.7	-301.3	-26.5	0.00	0.00	0.00
2,600.0	12.07	253.94	2,567.6	-92.5	-321.4	-28.3	0.00	0.00	0.00
2,700.0	12.07	253.94	2,665.4	-98.3	-341.5	-30.0	0.00	0.00	0.00
2,800.0	12.07	253.94	2,763.2	-104.1	-361.6	-31.8	0.00	0.00	0.00
2,900.0	12.07	253.94	2,861.0	-109.9	-381.7	-33.6	0.00	0.00	0.00
3,000.0	12.07	253.94	2,958.8	-115.7	-401.8	-35.3	0.00	0.00	0.00
3,100.0	12.07	253.94	3,056.6	-121.4	-421.9	-37.1	0.00	0.00	0.00
3,200.0	12.07	253.94	3,154.3	-127.2	-442.0	-38.9	0.00	0.00	0.00
3,300.0	12.07	253.94	3,252.1	-133.0	-462.2	-40.6	0.00	0.00	0.00
3,400.0	12.07	253.94	3,349.9	-138.8	-482.3	-42.4	0.00	0.00	0.00
3,500.0	12.07	253.94	3,447.7	-144.6	-502.4	-44.2	0.00	0.00	0.00
3,600.0	12.07	253.94	3,545.5	-150.4	-522.5	-45.9	0.00	0.00	0.00
3,700.0	12.07	253.94	3,643.3	-156.2	-542.6	-47.7	0.00	0.00	0.00
3,800.0	12.07	253.94	3,741.1	-161.9	-562.7	-49.5	0.00	0.00	0.00
3,900.0	12.07	253.94	3,838.9	-167.7	-582.8	-51.2	0.00	0.00	0.00
3,993.2	12.07	253.94	3,930.0	-173.1	-601.5	-52.9	0.00	0.00	0.00
Parkman									
4,000.0	12.07	253.94	3,936.6	-173.5	-602.9	-53.0	0.00	0.00	0.00
4,100.0	12.07	253.94	4,034.4	-179.3	-623.0	-54.8	0.00	0.00	0.00
4,200.0	12.07	253.94	4,132.2	-185.1	-643.1	-56.5	0.00	0.00	0.00
4,300.0	12.07	253.94	4,230.0	-190.9	-663.2	-58.3	0.00	0.00	0.00
4,400.0	12.07	253.94	4,327.8	-196.7	-683.3	-60.1	0.00	0.00	0.00
4,458.5	12.07	253.94	4,385.0	-200.0	-695.0	-61.1	0.00	0.00	0.00

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Project:</b>	SEC.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (2-5-16)		

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)
<b>Sussex</b>									
4,500.0	12.07	253.94	4,425.6	-202.4	-703.4	-61.8	0.00	0.00	0.00
4,600.0	12.07	253.94	4,523.4	-208.2	-723.5	-63.6	0.00	0.00	0.00
4,700.0	12.07	253.94	4,621.2	-214.0	-743.6	-65.4	0.00	0.00	0.00
4,800.0	12.07	253.94	4,718.9	-219.8	-763.7	-67.1	0.00	0.00	0.00
4,900.0	12.07	253.94	4,816.7	-225.6	-783.8	-68.9	0.00	0.00	0.00
5,000.0	12.07	253.94	4,914.5	-231.4	-803.9	-70.7	0.00	0.00	0.00
5,046.5	12.07	253.94	4,960.0	-234.1	-813.2	-71.5	0.00	0.00	0.00
<b>Shannon</b>									
5,088.2	12.07	253.94	5,000.8	-236.5	-821.6	-72.2	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,100.0	11.84	253.94	5,012.3	-237.1	-824.0	-72.4	2.01	-2.01	0.00
5,200.0	9.84	253.94	5,110.5	-242.3	-842.0	-74.0	2.00	-2.00	0.00
5,300.0	7.84	253.94	5,209.3	-246.6	-856.8	-75.3	2.00	-2.00	0.00
5,400.0	5.84	253.94	5,308.6	-249.9	-868.2	-76.3	2.00	-2.00	0.00
5,500.0	3.84	253.94	5,408.3	-252.2	-876.3	-77.0	2.00	-2.00	0.00
5,600.0	1.84	253.94	5,508.1	-253.6	-881.1	-77.4	2.00	-2.00	0.00
5,691.9	0.00	0.00	5,600.0	-254.0	-882.5	-77.6	2.00	-2.00	0.00
5,700.0	0.00	0.00	5,608.1	-254.0	-882.5	-77.6	0.00	0.00	0.00
5,800.0	0.00	0.00	5,708.1	-254.0	-882.5	-77.6	0.00	0.00	0.00
5,900.0	0.00	0.00	5,808.1	-254.0	-882.5	-77.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,908.1	-254.0	-882.5	-77.6	0.00	0.00	0.00
6,100.0	0.00	0.00	6,008.1	-254.0	-882.5	-77.6	0.00	0.00	0.00
6,200.0	0.00	0.00	6,108.1	-254.0	-882.5	-77.6	0.00	0.00	0.00
6,300.0	0.00	0.00	6,208.1	-254.0	-882.5	-77.6	0.00	0.00	0.00
6,400.0	0.00	0.00	6,308.1	-254.0	-882.5	-77.6	0.00	0.00	0.00
6,500.0	0.00	0.00	6,408.1	-254.0	-882.5	-77.6	0.00	0.00	0.00
6,557.3	0.00	0.00	6,465.4	-254.0	-882.5	-77.6	0.00	0.00	0.00
<b>KOP #2 - Start Build 7.50</b>									
6,600.0	3.20	1.00	6,508.1	-252.8	-882.5	-76.4	7.50	7.50	0.00
6,700.0	10.70	1.00	6,607.3	-240.7	-882.3	-64.6	7.50	7.50	0.00
6,800.0	18.20	1.00	6,704.1	-215.8	-881.9	-40.2	7.50	7.50	0.00
6,900.0	25.70	1.00	6,796.7	-178.4	-881.2	-3.7	7.50	7.50	0.00
7,000.0	33.20	1.00	6,883.7	-129.3	-880.3	44.3	7.50	7.50	0.00
7,100.0	40.70	1.00	6,963.6	-69.2	-879.3	103.0	7.50	7.50	0.00
7,179.4	46.66	1.00	7,021.0	-14.4	-878.3	156.6	7.50	7.50	0.00
<b>Sharon Springs</b>									
7,200.0	48.20	1.00	7,034.9	0.7	-878.1	171.4	7.50	7.50	0.00
7,300.0	55.70	1.00	7,096.5	79.4	-876.7	248.3	7.50	7.50	0.00
7,400.0	63.20	1.00	7,147.3	165.5	-875.2	332.5	7.50	7.50	0.00
7,419.8	64.68	1.00	7,156.0	183.2	-874.9	349.8	7.50	7.50	0.00
<b>Niobrara A</b>									
7,500.0	70.70	1.00	7,186.4	257.4	-873.6	422.3	7.50	7.50	0.00
7,501.7	70.83	1.00	7,187.0	259.0	-873.6	423.9	7.50	7.50	0.00
<b>Niobrara B</b>									
7,600.0	78.20	1.00	7,213.2	353.6	-871.9	516.4	7.50	7.50	0.00
7,700.0	85.70	1.00	7,227.2	452.6	-870.2	613.1	7.50	7.50	0.00
7,765.7	90.63	1.00	7,229.3	518.2	-869.1	677.3	7.50	7.50	0.00
<b>7"</b>									
7,800.0	90.63	1.00	7,228.9	552.5	-868.5	710.8	0.00	0.00	0.00
7,900.0	90.63	1.00	7,227.8	652.5	-866.7	808.5	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Niles Miller 20T-241
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 4968.0ft (Original Well Elev)
Project:	SEC.20-T3N-R66W	MD Reference:	WELL @ 4968.0ft (Original Well Elev)
Site:	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	North Reference:	True
Well:	Niles Miller 20T-241	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (2-5-16)		

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)
8,000.0	90.63	1.00	7,226.7	752.5	-865.0	906.3	0.00	0.00	0.00
8,100.0	90.63	1.00	7,225.6	852.4	-863.2	1,004.0	0.00	0.00	0.00
8,200.0	90.63	1.00	7,224.5	952.4	-861.5	1,101.7	0.00	0.00	0.00
8,300.0	90.63	1.00	7,223.4	1,052.4	-859.8	1,199.5	0.00	0.00	0.00
8,400.0	90.63	1.00	7,222.3	1,152.4	-858.0	1,297.2	0.00	0.00	0.00
8,500.0	90.63	1.00	7,221.2	1,252.4	-856.3	1,394.9	0.00	0.00	0.00
8,600.0	90.63	1.00	7,220.1	1,352.3	-854.5	1,492.7	0.00	0.00	0.00
8,700.0	90.63	1.00	7,219.0	1,452.3	-852.8	1,590.4	0.00	0.00	0.00
8,800.0	90.63	1.00	7,217.9	1,552.3	-851.0	1,688.1	0.00	0.00	0.00
8,900.0	90.63	1.00	7,216.8	1,652.3	-849.3	1,785.9	0.00	0.00	0.00
9,000.0	90.63	1.00	7,215.7	1,752.3	-847.6	1,883.6	0.00	0.00	0.00
9,100.0	90.63	1.00	7,214.7	1,852.2	-845.8	1,981.3	0.00	0.00	0.00
9,200.0	90.63	1.00	7,213.6	1,952.2	-844.1	2,079.1	0.00	0.00	0.00
9,300.0	90.63	1.00	7,212.5	2,052.2	-842.3	2,176.8	0.00	0.00	0.00
9,400.0	90.63	1.00	7,211.4	2,152.2	-840.6	2,274.5	0.00	0.00	0.00
9,500.0	90.63	1.00	7,210.3	2,252.1	-838.9	2,372.3	0.00	0.00	0.00
9,600.0	90.63	1.00	7,209.2	2,352.1	-837.1	2,470.0	0.00	0.00	0.00
9,700.0	90.63	1.00	7,208.1	2,452.1	-835.4	2,567.7	0.00	0.00	0.00
9,800.0	90.63	1.00	7,207.0	2,552.1	-833.6	2,665.5	0.00	0.00	0.00
9,900.0	90.63	1.00	7,205.9	2,652.1	-831.9	2,763.2	0.00	0.00	0.00
10,000.0	90.63	1.00	7,204.8	2,752.0	-830.1	2,860.9	0.00	0.00	0.00
10,100.0	90.63	1.00	7,203.7	2,852.0	-828.4	2,958.7	0.00	0.00	0.00
10,200.0	90.63	1.00	7,202.6	2,952.0	-826.7	3,056.4	0.00	0.00	0.00
10,300.0	90.63	1.00	7,201.5	3,052.0	-824.9	3,154.1	0.00	0.00	0.00
10,386.9	90.63	1.00	7,200.5	3,138.9	-823.4	3,239.1	0.00	0.00	0.00
Start DLS 2.00 TFO -90.00 - WP (20T-241)									
10,400.0	90.63	0.74	7,200.4	3,152.0	-823.2	3,251.9	2.00	0.00	-2.00
10,500.0	90.63	358.74	7,199.3	3,251.9	-823.7	3,350.0	2.00	0.00	-2.00
10,582.1	90.63	357.10	7,198.4	3,333.9	-826.6	3,431.0	2.00	0.00	-2.00
10,600.0	90.63	357.10	7,198.2	3,351.9	-827.6	3,448.8	0.00	0.00	0.00
10,700.0	90.63	357.10	7,197.1	3,451.7	-832.6	3,547.7	0.00	0.00	0.00
10,800.0	90.63	357.10	7,196.0	3,551.6	-837.7	3,646.7	0.00	0.00	0.00
10,900.0	90.63	357.10	7,194.9	3,651.5	-842.8	3,745.6	0.00	0.00	0.00
11,000.0	90.63	357.10	7,193.8	3,751.3	-847.8	3,844.6	0.00	0.00	0.00
11,100.0	90.63	357.10	7,192.7	3,851.2	-852.9	3,943.5	0.00	0.00	0.00
11,200.0	90.63	357.10	7,191.6	3,951.1	-858.0	4,042.5	0.00	0.00	0.00
11,300.0	90.63	357.10	7,190.5	4,050.9	-863.0	4,141.4	0.00	0.00	0.00
11,400.0	90.63	357.10	7,189.4	4,150.8	-868.1	4,240.4	0.00	0.00	0.00
11,500.0	90.63	357.10	7,188.3	4,250.6	-873.2	4,339.3	0.00	0.00	0.00
11,600.0	90.63	357.10	7,187.2	4,350.5	-878.2	4,438.2	0.00	0.00	0.00
11,700.0	90.63	357.10	7,186.1	4,450.4	-883.3	4,537.2	0.00	0.00	0.00
11,708.1	90.63	357.10	7,186.0	4,458.5	-883.7	4,545.2	0.00	0.00	0.00
TD at 11708.1 - BHL 500°FNL, 1672°FEL									

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Project:</b>	SEC.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>North Reference:</b>	True
<b>Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (2-5-16)		

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 304'FSL, 828'FEL - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,317,925.68	3,197,036.81	40.203952	-104.794566
BHL 500'FNL, 1672'FEL - plan hits target center - Point	0.00	0.00	7,186.0	4,458.5	-883.7	1,322,376.80	3,196,117.72	40.216190	-104.797730
WP (20T-241) - plan hits target center - Point	0.00	0.00	7,200.5	3,138.9	-823.4	1,321,057.78	3,196,188.51	40.212568	-104.797514

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,765.7	7,229.3	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,993.2	3,930.0	Parkman		0.00	
4,458.5	4,385.0	Sussex		0.00	
5,046.5	4,960.0	Shannon		0.00	
7,179.4	7,021.0	Sharon Springs		0.00	
7,419.8	7,156.0	Niobrara A		0.00	
7,501.7	7,187.0	Niobrara B		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
600.0	600.0	0.0	0.0	KOP - Start Build 1.50
5,088.2	5,000.8	-236.5	-821.6	Start Drop -2.00
6,557.3	6,465.4	-254.0	-882.5	KOP #2 - Start Build 7.50
10,386.9	7,200.5	3,138.9	-823.4	Start DLS 2.00 TFO -90.00
11,708.1	7,186.0	4,458.5	-883.7	TD at 11708.1



# Directional

## PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.20-T3N-R66W

Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W

Niles Miller 20T-241

Wellbore #1

Plan #2 (2-5-16)

## Anticollision Report

08 February, 2016





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2 (2-5-16)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0 ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.45 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b> 2/5/2016			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,708.1	Plan #2 (2-5-16) (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						
Existing Wells Sec.20-T3N-R66W						
Barclay Crisman 4-6-20 (Exist) - Wellbore #1 - Wellbore						Out of range
Brattain Marble Unit 1 (Exist) - Wellbore #1 - Wellbore #1	10,927.6	7,159.8	369.0	263.9	3.511	CC, ES, SF
Miller 33-20 - Encana (Exist) - Wellbore #1 - Wellbore #1	9,083.7	7,188.7	610.7	542.2	8.915	CC
Miller 33-20 - Encana (Exist) - Wellbore #1 - Wellbore #1	9,100.0	7,188.4	610.9	542.1	8.874	ES
Miller 33-20 - Encana (Exist) - Wellbore #1 - Wellbore #1	9,200.0	7,187.1	621.7	550.7	8.759	SF
Miller 33-20 - PDC (Exist) - Wellbore #1 - Wellbore #1	9,174.0	7,192.7	626.6	557.4	9.052	CC
Miller 33-20 - PDC (Exist) - Wellbore #1 - Wellbore #1	9,200.0	7,192.2	627.1	557.3	8.988	ES
Miller 33-20 - PDC (Exist) - Wellbore #1 - Wellbore #1	9,300.0	7,190.5	639.1	567.2	8.886	SF
Miller 34-20 - Encana (Exist) - Wellbore #1 - Wellbore #1	7,653.4	7,171.3	610.4	569.0	14.772	CC, ES
Miller 34-20 - Encana (Exist) - Wellbore #1 - Wellbore #1	7,765.7	7,185.2	620.3	577.6	14.556	SF
Miller 34-20 - PDC (Exist) - Wellbore #1 - Wellbore #1	7,813.6	7,188.8	548.5	506.9	13.176	CC, ES
Miller 34-20 - PDC (Exist) - Wellbore #1 - Wellbore #1	7,900.0	7,191.4	555.3	512.5	12.977	SF
Miller 4-20J (Exist) - Wellbore #1 - Wellbore #1	8,309.4	7,229.9	250.1	198.7	4.868	CC, ES, SF
Miller 44-20 - Encana (Exist) - Wellbore #1 - Wellbore #1	113.8	120.8	443.9	443.5	1,163.523	CC
Miller 44-20 - Encana (Exist) - Wellbore #1 - Wellbore #1	620.2	629.4	444.1	441.3	157.218	ES
Miller 44-20 - Encana (Exist) - Wellbore #1 - Wellbore #1	3,800.0	3,766.0	992.0	971.5	48.495	SF
Miller 44-20 - PDC (Exist) - Wellbore #1 - Wellbore #1	619.4	630.6	476.0	473.2	168.499	CC, ES
Miller 44-20 - PDC (Exist) - Wellbore #1 - Wellbore #1	3,800.0	3,766.2	998.6	977.9	48.148	SF
Miller 5 (Exist) - Wellbore #1 - Wellbore #1	8,349.4	7,221.3	118.7	65.5	2.231	CC, ES, SF
Raymond 15C-29HZ (Exist) - Wellbore #1 - Wellbore #1	6,016.5	5,913.1	160.4	123.4	4.331	CC
Raymond 15C-29HZ (Exist) - Wellbore #1 - Wellbore #1	6,100.0	5,996.0	160.6	123.1	4.286	ES
Raymond 15C-29HZ (Exist) - Wellbore #1 - Wellbore #1	6,557.3	6,451.4	166.2	126.5	4.180	SF
Raymond 15N-29HZ (Exist) - Wellbore #1 - Wellbore #1	5,653.6	5,565.8	444.5	411.1	13.330	CC
Raymond 15N-29HZ (Exist) - Wellbore #1 - Wellbore #1	6,000.0	5,916.1	445.5	410.7	12.779	ES
Raymond 15N-29HZ (Exist) - Wellbore #1 - Wellbore #1	6,650.0	6,569.8	449.7	412.2	11.979	SF
Raymond 16N-29HZ (Exist) - Wellbore #1 - Wellbore #1	2,926.7	2,866.9	363.1	342.0	17.168	CC, ES
Raymond 16N-29HZ (Exist) - Wellbore #1 - Wellbore #1	3,200.0	3,119.0	377.7	354.3	16.095	SF
Raymond 37N-29HZ (Exist) - Wellbore #1 - Wellbore #1	3,669.2	3,584.2	201.9	176.1	7.824	CC
Raymond 37N-29HZ (Exist) - Wellbore #1 - Wellbore #1	3,700.0	3,614.5	201.9	175.9	7.741	ES
Raymond 37N-29HZ (Exist) - Wellbore #1 - Wellbore #1	4,000.0	3,910.3	211.4	183.0	7.435	SF
Raymond 38C-29HC (Exist) - Wellbore #1 - Wellbore #1	2,632.4	2,575.9	428.3	409.3	22.584	CC, ES
Raymond 38C-29HC (Exist) - Wellbore #1 - Wellbore #1	3,000.0	2,911.8	453.1	431.0	20.449	SF
Raymond 38N-29HZX (Exist) - Wellbore #1 - Wellbore #1	2,422.2	2,369.5	423.3	406.0	24.476	CC, ES
Raymond 38N-29HZX (Exist) - Wellbore #1 - Wellbore #1	2,800.0	2,711.7	452.5	431.5	21.622	SF
Soco 20-1K (Exist) - Wellbore #1 - Wellbore #1	11,473.0	7,186.5	812.3	692.8	6.797	CC

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Existing Wells Sec.20-T3N-R66W						
Soco 20-1K (Exist) - Wellbore #1 - Wellbore #1	11,500.0	7,186.2	812.8	692.7	6.766	ES
Soco 20-1K (Exist) - Wellbore #1 - Wellbore #1	11,600.0	7,185.0	822.2	699.8	6.715	SF
Soco 20-2K (Exist) - Wellbore #1 - Wellbore #1	11,463.4	7,136.3	388.8	266.8	3.187	CC, ES
Soco 20-2K (Exist) - Wellbore #1 - Wellbore #1	11,500.0	7,135.2	390.5	267.6	3.179	SF
Soco 20-7K (Exist) - Wellbore #1 - Wellbore #1	10,385.1	7,162.9	102.6	8.8	1.094	Level 2, CC
Soco 20-7K (Exist) - Wellbore #1 - Wellbore #1	10,386.9	7,162.9	102.7	8.8	1.094	Level 2, ES, SF
Soco 20-8K (Exist) - Wellbore #1 - Wellbore #1	10,439.1	7,193.9	731.3	634.9	7.588	CC, ES
Soco 20-8K (Exist) - Wellbore #1 - Wellbore #1	10,582.1	7,194.5	748.6	648.9	7.503	SF
Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W						
Niles Miller 20Q-221 - Wellbore #1 - Plan #1 (12-01-15)	200.0	199.0	30.0	29.1	36.466	CC
Niles Miller 20Q-221 - Wellbore #1 - Plan #1 (12-01-15)	300.0	298.9	30.2	28.8	22.236	ES
Niles Miller 20Q-221 - Wellbore #1 - Plan #1 (12-01-15)	11,708.1	11,832.9	684.3	467.4	3.156	SF
Niles Miller 20Q-321 - Wellbore #1 - Plan #2 (2-5-16)	400.0	399.0	15.0	13.1	7.805	CC
Niles Miller 20Q-321 - Wellbore #1 - Plan #2 (2-5-16)	500.0	498.9	15.3	12.8	6.233	ES
Niles Miller 20Q-321 - Wellbore #1 - Plan #2 (2-5-16)	11,708.1	11,861.4	247.4	46.1	1.229	Level 2, SF
Niles Miller 20T-221 - Wellbore #1 - Plan #1 (12-01-15)	600.0	600.0	30.1	27.1	9.955	CC
Niles Miller 20T-221 - Wellbore #1 - Plan #1 (12-01-15)	700.0	700.0	30.5	26.9	8.575	ES
Niles Miller 20T-221 - Wellbore #1 - Plan #1 (12-01-15)	11,708.1	11,634.0	664.8	450.6	3.104	SF
Niles Miller 20T-301 - Wellbore #1 - Plan #2 (2-5-16)	600.0	600.0	15.0	12.0	4.964	CC
Niles Miller 20T-301 - Wellbore #1 - Plan #2 (2-5-16)	700.0	700.0	15.4	11.8	4.333	ES
Niles Miller 20T-301 - Wellbore #1 - Plan #2 (2-5-16)	10,900.0	10,949.1	262.3	91.0	1.531	SF
Niles Miller 20T-321 - Wellbore #1 - Plan #1 (12-01-15)	600.0	602.0	75.1	72.0	24.787	CC
Niles Miller 20T-321 - Wellbore #1 - Plan #1 (12-01-15)	700.0	702.0	75.4	71.9	21.198	ES
Niles Miller 20T-321 - Wellbore #1 - Plan #1 (12-01-15)	11,708.1	11,731.7	997.1	783.9	4.676	SF
Niles Miller 20Y-241 - Wellbore #1 - Plan #1 (12-01-15)	600.0	601.0	60.0	56.9	19.824	CC
Niles Miller 20Y-241 - Wellbore #1 - Plan #1 (12-01-15)	700.0	701.0	60.3	56.8	16.972	ES
Niles Miller 20Y-241 - Wellbore #1 - Plan #1 (12-01-15)	1,100.0	1,099.6	75.5	69.8	13.182	SF
Niles Miller 20Y-401 - Wellbore #1 - Plan #1 (12-01-15)	600.0	601.0	45.0	41.9	14.865	CC
Niles Miller 20Y-401 - Wellbore #1 - Plan #1 (12-01-15)	700.0	701.0	45.3	41.8	12.753	ES
Niles Miller 20Y-401 - Wellbore #1 - Plan #1 (12-01-15)	1,000.0	1,000.3	54.4	49.2	10.532	SF

<b>Offset Design</b> Existing Wells Sec.20-T3N-R66W - Brattain Marble Unit 1 (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		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
10,100.0	7,203.7	7,177.5	7,176.7	72.1	15.8	94.48	3,697.6	-476.1	916.2	830.0	86.13	10.637	
10,200.0	7,202.6	7,175.3	7,174.6	74.3	15.8	94.11	3,697.6	-476.1	824.1	735.7	88.37	9.325	
10,300.0	7,201.5	7,173.1	7,172.3	76.4	15.8	93.74	3,697.6	-476.0	734.0	643.4	90.61	8.101	
10,386.9	7,200.5	7,171.2	7,170.4	78.4	15.8	93.41	3,697.6	-476.0	658.1	565.5	92.56	7.110	
10,400.0	7,200.4	7,170.9	7,170.1	78.6	15.8	93.34	3,697.6	-476.0	646.9	554.0	92.90	6.964	
10,500.0	7,199.3	7,168.7	7,168.0	80.6	15.8	92.81	3,697.7	-475.9	565.5	470.2	95.31	5.933	
10,582.1	7,198.4	7,167.0	7,166.2	82.2	15.8	92.43	3,697.7	-475.9	505.5	408.2	97.25	5.198	
10,600.0	7,198.2	7,166.6	7,165.9	82.6	15.8	92.38	3,697.7	-475.9	493.4	395.7	97.63	5.054	
10,700.0	7,197.1	7,164.5	7,163.8	84.8	15.8	92.05	3,697.7	-475.8	433.5	333.6	99.91	4.339	
10,800.0	7,196.0	7,162.5	7,161.7	87.1	15.7	91.73	3,697.7	-475.8	390.4	288.2	102.19	3.821	
10,900.0	7,194.9	7,160.4	7,159.6	89.4	15.7	91.40	3,697.7	-475.7	370.0	265.6	104.47	3.542	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells Sec.20-T3N-R66W - Brattain Marble Unit 1 (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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
10,927.6	7,194.6	7,159.8	7,159.0	90.0	15.7	91.31	3,697.8	-475.7	369.0	263.9	105.10	3.511	CC, ES, SF		
11,000.0	7,193.8	7,158.2	7,157.5	91.7	15.7	91.07	3,697.8	-475.7	376.1	269.3	106.76	3.523			
11,100.0	7,192.7	7,156.1	7,155.4	94.0	15.7	90.75	3,697.8	-475.6	407.3	298.3	109.04	3.735			
11,200.0	7,191.6	7,154.0	7,153.2	96.2	15.7	90.42	3,697.8	-475.6	458.7	347.3	111.33	4.120			
11,300.0	7,190.5	7,151.9	7,151.1	98.5	15.7	90.08	3,697.8	-475.5	524.2	410.6	113.61	4.614			
11,400.0	7,189.4	7,149.7	7,149.0	100.8	15.7	89.75	3,697.9	-475.5	599.4	483.5	115.90	5.172			
11,500.0	7,188.3	7,147.6	7,146.8	103.1	15.7	89.42	3,697.9	-475.4	681.0	562.8	118.18	5.762			
11,600.0	7,187.2	7,145.4	7,144.6	105.5	15.7	89.08	3,697.9	-475.4	766.9	646.4	120.47	6.366			
11,708.1	7,186.0	7,143.1	7,142.3	107.9	15.7	88.72	3,697.9	-475.3	863.3	740.3	122.94	7.022			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Miller 33-20 - Encana (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,300.0	7,223.4	7,198.7	7,197.8	36.1	20.4	-90.27	1,846.4	-1,456.8	993.5	940.6	52.84	18.802		
8,400.0	7,222.3	7,197.5	7,196.5	37.7	20.4	-90.16	1,846.4	-1,456.8	916.7	862.0	54.69	16.762		
8,500.0	7,221.2	7,196.2	7,195.3	39.5	20.4	-90.04	1,846.4	-1,456.7	844.7	788.1	56.60	14.925		
8,600.0	7,220.1	7,195.0	7,194.1	41.3	20.4	-89.93	1,846.4	-1,456.7	779.0	720.4	58.55	13.304		
8,700.0	7,219.0	7,193.7	7,192.8	43.1	20.4	-89.81	1,846.4	-1,456.7	721.2	660.6	60.55	11.911		
8,800.0	7,217.9	7,192.4	7,191.5	45.0	20.4	-89.69	1,846.4	-1,456.7	673.3	610.8	62.58	10.759		
8,900.0	7,216.8	7,191.1	7,190.2	46.9	20.4	-89.56	1,846.4	-1,456.7	637.7	573.1	64.64	9.865		
9,000.0	7,215.7	7,189.8	7,188.9	48.9	20.4	-89.44	1,846.5	-1,456.7	616.4	549.7	66.73	9.237		
9,083.7	7,214.8	7,188.7	7,187.7	50.6	20.4	-89.33	1,846.5	-1,456.7	610.7	542.2	68.50	8.915 CC		
9,100.0	7,214.7	7,188.4	7,187.5	50.9	20.4	-89.31	1,846.5	-1,456.7	610.9	542.1	68.84	8.874 ES		
9,200.0	7,213.6	7,187.1	7,186.1	52.9	20.4	-89.19	1,846.5	-1,456.6	621.7	550.7	70.98	8.759 SF		
9,300.0	7,212.5	7,185.7	7,184.8	55.0	20.4	-89.06	1,846.5	-1,456.6	647.9	574.7	73.13	8.860		
9,400.0	7,211.4	7,184.3	7,183.3	57.1	20.4	-88.92	1,846.5	-1,456.6	687.7	612.5	75.29	9.135		
9,500.0	7,210.3	7,182.8	7,181.9	59.2	20.4	-88.79	1,846.5	-1,456.6	739.1	661.6	77.47	9.541		
9,600.0	7,209.2	7,181.4	7,180.5	61.3	20.4	-88.65	1,846.5	-1,456.6	799.7	720.0	79.66	10.039		
9,700.0	7,208.1	7,179.9	7,179.0	63.4	20.4	-88.51	1,846.5	-1,456.6	867.6	785.8	81.86	10.599		
9,800.0	7,207.0	7,178.4	7,177.5	65.6	20.4	-88.37	1,846.5	-1,456.5	941.3	857.2	84.06	11.197		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Miller 33-20 - PDC (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	7,222.3	7,206.2	7,205.8	37.7	19.3	-91.00	1,937.0	-1,471.1	995.8	942.3	53.45	18.629		
8,500.0	7,221.2	7,204.5	7,204.0	39.5	19.3	-90.84	1,937.1	-1,471.1	920.2	864.8	55.37	16.620		
8,600.0	7,220.1	7,202.7	7,202.3	41.3	19.3	-90.68	1,937.1	-1,471.1	849.7	792.4	57.33	14.822		
8,700.0	7,219.0	7,201.0	7,200.5	43.1	19.3	-90.52	1,937.1	-1,471.0	785.6	726.3	59.33	13.242		
8,800.0	7,217.9	7,199.2	7,198.8	45.0	19.3	-90.36	1,937.1	-1,471.0	729.7	668.3	61.37	11.891		
8,900.0	7,216.8	7,197.5	7,197.0	46.9	19.3	-90.20	1,937.1	-1,471.0	683.9	620.4	63.43	10.781		
9,000.0	7,215.7	7,195.7	7,195.3	48.9	19.3	-90.04	1,937.1	-1,471.0	650.3	584.8	65.53	9.924		
9,100.0	7,214.7	7,194.0	7,193.5	50.9	19.2	-89.88	1,937.1	-1,471.0	630.9	563.3	67.64	9.328		
9,174.0	7,213.8	7,192.7	7,192.3	52.4	19.2	-89.76	1,937.1	-1,471.0	626.6	557.4	69.22	9.052 CC		
9,200.0	7,213.6	7,192.2	7,191.8	52.9	19.2	-89.72	1,937.1	-1,471.0	627.1	557.3	69.78	8.988 ES		
9,300.0	7,212.5	7,190.5	7,190.1	55.0	19.2	-89.56	1,937.1	-1,471.0	639.1	567.2	71.93	8.886 SF		
9,400.0	7,211.4	7,188.7	7,188.3	57.1	19.2	-89.40	1,937.2	-1,471.0	666.1	592.0	74.09	8.990		
9,500.0	7,210.3	7,187.0	7,186.6	59.2	19.2	-89.24	1,937.2	-1,471.0	706.3	630.0	76.28	9.260		
9,600.0	7,209.2	7,185.2	7,184.8	61.3	19.2	-89.08	1,937.2	-1,471.0	757.6	679.2	78.47	9.655		
9,700.0	7,208.1	7,183.5	7,183.1	63.4	19.2	-88.92	1,937.2	-1,471.0	818.0	737.4	80.67	10.141		
9,800.0	7,207.0	7,181.7	7,181.3	65.6	19.2	-88.76	1,937.2	-1,471.0	885.6	802.7	82.88	10.686		
9,900.0	7,205.9	7,180.0	7,179.6	67.7	19.2	-88.60	1,937.2	-1,471.0	958.9	873.8	85.10	11.268		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Miller 34-20 - Encana (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	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)			
4,100.0	4,034.4	3,997.6	3,997.0	19.0	10.1	51.87	389.6	-1,430.2	987.6	960.7	26.87	36.751		
4,200.0	4,132.2	4,091.3	4,090.7	19.6	10.3	52.68	388.2	-1,431.3	974.6	946.9	27.72	35.166		
4,300.0	4,230.0	4,186.2	4,185.5	20.1	10.6	53.49	386.6	-1,433.0	962.3	933.7	28.58	33.669		
4,400.0	4,327.8	4,279.2	4,278.4	20.7	10.9	54.28	384.9	-1,435.2	950.6	921.2	29.45	32.275		
4,500.0	4,425.6	4,374.3	4,373.5	21.3	11.2	55.10	383.5	-1,437.8	939.6	909.3	30.35	30.962		
4,600.0	4,523.4	4,472.7	4,471.8	21.8	11.5	55.97	382.1	-1,440.7	929.0	897.8	31.26	29.715		
4,700.0	4,621.2	4,567.9	4,567.0	22.4	11.8	56.82	380.6	-1,443.7	918.7	886.6	32.17	28.555		
4,800.0	4,718.9	4,666.8	4,665.8	23.0	12.1	57.71	379.2	-1,447.2	908.9	875.8	33.11	27.456		
4,900.0	4,816.7	4,765.0	4,764.0	23.5	12.4	58.64	378.0	-1,450.2	899.2	865.2	34.04	26.414		
5,000.0	4,914.5	4,861.3	4,860.2	24.1	12.7	59.60	377.3	-1,453.0	890.0	855.0	34.98	25.439		
5,088.2	5,000.7	4,950.4	4,949.3	24.6	13.0	60.52	376.9	-1,455.4	882.1	846.2	35.84	24.613		
5,100.0	5,012.3	4,962.8	4,961.7	24.7	13.1	60.64	376.9	-1,455.7	881.0	845.1	35.95	24.509		
5,200.0	5,110.5	5,063.6	5,062.5	25.1	13.4	61.47	376.4	-1,457.7	872.9	836.2	36.74	23.759		
5,300.0	5,209.3	5,163.8	5,162.7	25.4	13.7	62.16	376.2	-1,459.3	866.6	829.1	37.46	23.130		
5,400.0	5,308.6	5,262.9	5,261.7	25.7	14.0	62.69	375.9	-1,460.9	861.9	823.8	38.12	22.611		
5,500.0	5,408.3	5,359.2	5,358.1	25.9	14.3	63.03	375.7	-1,462.5	859.1	820.4	38.69	22.205		
5,585.4	5,493.5	5,441.3	5,440.1	26.1	14.6	63.20	375.9	-1,464.2	858.4	819.2	39.11	21.946		
5,600.0	5,508.1	5,455.5	5,454.3	26.1	14.6	63.22	375.9	-1,464.4	858.4	819.2	39.18	21.908		
5,691.9	5,600.0	5,547.3	5,546.1	26.3	14.9	-42.78	376.6	-1,466.2	859.4	819.9	39.47	21.772		
5,700.0	5,608.1	5,555.6	5,554.4	26.3	14.9	-42.79	376.7	-1,466.3	859.5	820.0	39.51	21.756		
5,800.0	5,708.1	5,657.5	5,656.3	26.4	15.2	-42.83	377.4	-1,467.9	861.1	821.2	39.94	21.561		
5,900.0	5,808.1	5,758.8	5,757.6	26.6	15.5	-42.85	378.3	-1,469.0	862.5	822.2	40.36	21.373		
6,000.0	5,908.1	5,858.6	5,857.3	26.7	15.7	-42.85	379.2	-1,469.9	863.8	823.1	40.76	21.194		
6,100.0	6,008.1	5,959.4	5,958.2	26.8	15.9	-42.85	380.3	-1,470.8	865.2	824.0	41.16	21.022		
6,200.0	6,108.1	6,059.7	6,058.5	27.0	16.2	-42.83	381.4	-1,471.4	866.4	824.8	41.54	20.857		
6,300.0	6,208.1	6,157.4	6,156.1	27.2	16.4	-42.79	382.7	-1,472.0	867.7	825.8	41.91	20.706		
6,400.0	6,308.1	6,255.3	6,254.0	27.3	16.6	-42.74	384.4	-1,472.4	869.4	827.1	42.26	20.571		
6,500.0	6,408.1	6,354.5	6,353.2	27.5	16.7	-42.65	386.6	-1,472.7	871.2	828.5	42.62	20.442		
6,557.3	6,465.4	6,411.0	6,409.7	27.6	16.8	-42.61	387.8	-1,472.9	872.2	829.4	42.82	20.370		
6,600.0	6,508.1	6,451.2	6,449.8	27.6	16.9	-43.62	388.8	-1,473.1	872.2	829.2	43.07	20.250		
6,650.0	6,557.9	6,500.0	6,498.7	27.7	17.0	-43.88	390.1	-1,473.3	870.2	827.1	43.10	20.193		
6,700.0	6,607.3	6,545.4	6,544.0	27.7	17.1	-44.37	391.5	-1,473.6	866.0	823.1	42.96	20.158		
6,750.0	6,656.1	6,592.3	6,590.9	27.8	17.2	-45.14	393.1	-1,473.9	859.7	817.0	42.69	20.139		
6,800.0	6,704.1	6,640.3	6,638.9	27.8	17.3	-46.19	394.8	-1,474.3	851.2	808.9	42.29	20.128		
6,850.0	6,751.0	6,687.7	6,686.2	27.8	17.4	-47.55	396.5	-1,474.7	840.6	798.8	41.79	20.117		
6,900.0	6,796.7	6,732.5	6,731.0	27.8	17.5	-49.18	398.0	-1,475.1	828.1	786.9	41.21	20.096		
6,950.0	6,841.0	6,775.6	6,774.1	27.8	17.6	-51.09	399.6	-1,475.5	813.9	773.3	40.59	20.053		
7,000.0	6,883.7	6,818.2	6,816.7	27.8	17.7	-53.31	401.3	-1,476.0	798.3	758.3	39.97	19.971		
7,050.0	6,924.7	6,860.4	6,858.8	27.8	17.8	-55.87	403.1	-1,476.5	781.2	741.8	39.40	19.827		
7,100.0	6,963.6	6,900.0	6,898.4	27.8	17.9	-58.69	404.7	-1,476.9	763.1	724.2	38.92	19.606		
7,150.0	7,000.4	6,937.0	6,935.3	27.8	17.9	-61.72	406.3	-1,477.2	744.3	705.8	38.58	19.294		
7,200.0	7,034.9	6,971.4	6,969.7	27.8	18.0	-64.91	407.9	-1,477.6	725.2	686.8	38.39	18.892		
7,250.0	7,067.0	7,003.6	7,001.9	27.8	18.1	-68.23	409.4	-1,478.0	706.1	667.7	38.36	18.407		
7,300.0	7,096.5	7,033.1	7,031.3	27.8	18.1	-71.56	410.9	-1,478.5	687.5	649.0	38.49	17.862		
7,350.0	7,123.3	7,060.3	7,058.5	27.8	18.2	-74.84	412.3	-1,478.9	669.8	631.1	38.74	17.289		
7,400.0	7,147.3	7,085.1	7,083.3	27.9	18.3	-77.98	413.7	-1,479.3	653.6	614.5	39.09	16.722		
7,450.0	7,168.4	7,107.5	7,105.6	27.9	18.3	-80.89	414.9	-1,479.8	639.3	599.8	39.48	16.191		
7,500.0	7,186.4	7,127.6	7,125.6	28.0	18.4	-83.49	416.1	-1,480.2	627.4	587.5	39.91	15.720		
7,550.0	7,201.4	7,144.8	7,142.9	28.2	18.4	-85.68	417.1	-1,480.5	618.3	578.0	40.35	15.325		
7,600.0	7,213.2	7,159.2	7,157.2	28.4	18.4	-87.40	418.0	-1,480.8	612.5	571.7	40.80	15.013		
7,650.0	7,221.8	7,170.6	7,168.6	28.6	18.5	-88.61	418.7	-1,481.1	610.4	569.1	41.28	14.785		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Miller 34-20 - Encana (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 (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		
7,653.4	7,222.3	7,171.3	7,169.3	28.6	18.5	-88.67	418.8	-1,481.1	610.4	569.0	41.32	14.772 CC, ES			
7,700.0	7,227.2	7,179.0	7,177.0	28.9	18.5	-89.25	419.3	-1,481.3	612.1	570.2	41.81	14.638			
7,750.0	7,229.3	7,184.2	7,182.2	29.3	18.5	-89.32	419.6	-1,481.4	617.7	575.3	42.41	14.565			
7,765.7	7,229.3	7,185.2	7,183.2	29.4	18.5	-89.22	419.7	-1,481.4	620.3	577.6	42.61	14.556 SF			
7,800.0	7,228.9	7,187.0	7,185.0	29.7	18.5	-89.39	419.8	-1,481.4	627.2	584.2	43.03	14.574			
7,900.0	7,227.8	7,192.4	7,190.3	30.6	18.5	-89.89	420.1	-1,481.6	657.3	612.9	44.37	14.814			
8,000.0	7,226.7	7,197.9	7,195.8	31.8	18.5	-90.40	420.5	-1,481.7	700.4	654.6	45.83	15.283			
8,100.0	7,225.6	7,203.7	7,201.6	33.1	18.5	-90.95	420.9	-1,481.8	754.4	707.0	47.39	15.917			
8,200.0	7,224.5	7,209.9	7,207.8	34.5	18.6	-91.53	421.3	-1,481.9	817.0	768.0	49.05	16.658			
8,300.0	7,223.4	7,216.2	7,214.1	36.1	18.6	-92.12	421.7	-1,482.1	886.5	835.7	50.78	17.459			
8,400.0	7,222.3	7,222.7	7,220.5	37.7	18.6	-92.72	422.2	-1,482.2	961.4	908.8	52.57	18.289			



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Miller 34-20 - PDC (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		
4,600.0	4,523.4	4,476.4	4,476.1	21.8	10.7	64.85	538.9	-1,386.3	998.8	967.4	31.38	31.831		
4,700.0	4,621.2	4,569.6	4,569.3	22.4	11.0	65.77	538.5	-1,388.5	991.2	959.0	32.27	30.718		
4,800.0	4,718.9	4,662.0	4,661.6	23.0	11.2	66.68	538.6	-1,391.1	984.6	951.4	33.15	29.699		
4,900.0	4,816.7	4,758.3	4,757.8	23.5	11.5	67.64	539.0	-1,394.3	978.6	944.6	34.05	28.742		
5,000.0	4,914.5	4,858.1	4,857.7	24.1	11.8	68.63	539.1	-1,397.7	973.0	938.0	34.96	27.829		
5,088.2	5,000.7	4,947.1	4,946.6	24.6	12.0	69.54	539.3	-1,400.4	968.1	932.3	35.78	27.058		
5,100.0	5,012.3	4,959.1	4,958.6	24.7	12.1	69.65	539.4	-1,400.8	967.5	931.6	35.88	26.964		
5,200.0	5,110.5	5,060.1	5,059.6	25.1	12.3	70.50	539.5	-1,403.4	962.7	926.0	36.62	26.287		
5,300.0	5,209.3	5,159.5	5,158.9	25.4	12.6	71.19	539.7	-1,405.8	959.1	921.8	37.29	25.717		
5,400.0	5,308.6	5,258.2	5,257.6	25.7	12.9	71.73	540.2	-1,407.7	956.8	918.9	37.89	25.253		
5,500.0	5,408.3	5,357.8	5,357.1	25.9	13.2	72.13	541.0	-1,409.4	955.8	917.4	38.42	24.877		
5,545.3	5,453.5	5,403.2	5,402.6	26.0	13.3	72.25	541.3	-1,410.2	955.7	917.0	38.64	24.736		
5,600.0	5,508.1	5,460.4	5,459.7	26.1	13.4	72.35	541.6	-1,411.2	955.8	916.9	38.90	24.568		
5,691.9	5,600.0	5,558.2	5,557.5	26.3	13.7	-33.67	541.8	-1,412.7	956.3	917.0	39.24	24.367		
5,700.0	5,608.1	5,567.0	5,566.3	26.3	13.8	-33.68	541.8	-1,412.8	956.3	917.0	39.28	24.346		
5,800.0	5,708.1	5,670.0	5,669.3	26.4	14.1	-33.75	541.5	-1,414.0	956.7	917.0	39.73	24.078		
5,900.0	5,808.1	5,768.1	5,767.4	26.6	14.3	-33.78	541.5	-1,414.6	957.0	916.9	40.14	23.841		
6,000.0	5,908.1	5,860.5	5,859.8	26.7	14.5	-33.78	542.1	-1,415.0	957.8	917.3	40.50	23.650		
6,100.0	6,008.1	5,956.4	5,955.7	26.8	14.8	-33.80	543.2	-1,416.1	959.5	918.6	40.87	23.474		
6,200.0	6,108.1	6,060.9	6,060.2	27.0	15.0	-33.82	544.4	-1,417.4	961.0	919.8	41.26	23.293		
6,300.0	6,208.1	6,162.9	6,162.2	27.2	15.2	-33.78	545.6	-1,417.4	962.1	920.5	41.58	23.136		
6,400.0	6,308.1	6,259.5	6,258.8	27.3	15.3	-33.70	547.2	-1,417.0	963.2	921.4	41.87	23.003		
6,500.0	6,408.1	6,360.5	6,359.8	27.5	15.4	-33.63	549.2	-1,416.7	964.7	922.5	42.18	22.871		
6,557.3	6,465.4	6,419.0	6,418.2	27.6	15.5	-33.59	550.1	-1,416.6	965.4	923.0	42.36	22.788		
6,600.0	6,508.1	6,459.7	6,458.9	27.6	15.6	-34.62	550.8	-1,416.5	964.9	922.4	42.55	22.678		
6,650.0	6,557.9	6,507.7	6,507.0	27.7	15.7	-34.86	551.6	-1,416.5	962.0	919.5	42.52	22.623		
6,700.0	6,607.3	6,557.7	6,556.9	27.7	15.7	-35.33	552.6	-1,416.4	956.5	914.1	42.34	22.592		
6,750.0	6,656.1	6,600.0	6,599.2	27.8	15.8	-35.96	553.6	-1,416.1	948.3	906.3	41.99	22.585		
6,800.0	6,704.1	6,648.3	6,647.4	27.8	15.9	-36.88	554.8	-1,415.8	937.7	896.2	41.51	22.589		
6,850.0	6,751.0	6,689.6	6,688.7	27.8	16.0	-37.98	556.1	-1,415.8	925.0	884.1	40.91	22.613		
6,900.0	6,796.7	6,736.4	6,735.5	27.8	16.0	-39.44	557.6	-1,416.0	910.2	870.0	40.22	22.632		
6,950.0	6,841.0	6,783.9	6,783.0	27.8	16.1	-41.24	559.1	-1,416.1	893.0	853.5	39.46	22.627		
7,000.0	6,883.7	6,827.4	6,826.5	27.8	16.2	-43.32	560.4	-1,416.1	873.6	834.9	38.68	22.586		
7,050.0	6,924.7	6,868.0	6,867.1	27.8	16.3	-45.69	561.7	-1,416.1	852.4	814.5	37.91	22.485		
7,100.0	6,963.6	6,906.7	6,905.8	27.8	16.4	-48.39	563.1	-1,416.0	829.7	792.4	37.22	22.291		
7,150.0	7,000.4	6,942.4	6,941.4	27.8	16.4	-51.38	564.4	-1,416.0	805.6	768.9	36.66	21.976		
7,200.0	7,034.9	6,976.2	6,975.2	27.8	16.5	-54.68	565.8	-1,416.0	780.5	744.2	36.28	21.513		
7,250.0	7,067.0	7,008.1	7,007.1	27.8	16.5	-58.28	567.2	-1,415.9	754.7	718.5	36.12	20.890		
7,300.0	7,096.5	7,038.1	7,037.1	27.8	16.6	-62.12	568.6	-1,416.0	728.4	692.2	36.21	20.118		
7,350.0	7,123.3	7,065.7	7,064.6	27.8	16.7	-66.11	569.9	-1,416.0	702.2	665.7	36.51	19.235		
7,400.0	7,147.3	7,090.8	7,089.7	27.9	16.7	-70.14	571.1	-1,416.1	676.4	639.4	36.97	18.297		
7,450.0	7,168.4	7,113.6	7,112.5	27.9	16.8	-74.10	572.2	-1,416.2	651.5	614.0	37.53	17.358		
7,500.0	7,186.4	7,133.7	7,132.5	28.0	16.8	-77.84	573.2	-1,416.3	628.1	590.0	38.13	16.471		
7,550.0	7,201.4	7,150.6	7,149.4	28.2	16.8	-81.20	573.9	-1,416.4	606.7	567.9	38.72	15.670		
7,600.0	7,213.2	7,164.4	7,163.2	28.4	16.9	-84.07	574.6	-1,416.5	587.8	548.5	39.26	14.972		
7,650.0	7,221.8	7,175.0	7,173.8	28.6	16.9	-86.38	575.0	-1,416.5	572.1	532.3	39.78	14.382		
7,700.0	7,227.2	7,182.4	7,181.2	28.9	16.9	-88.07	575.4	-1,416.6	560.1	519.8	40.30	13.900		
7,750.0	7,229.3	7,186.6	7,185.4	29.3	16.9	-89.11	575.5	-1,416.6	552.2	511.4	40.84	13.521		
7,765.7	7,229.3	7,187.2	7,186.0	29.4	16.9	-89.29	575.6	-1,416.7	550.6	509.6	41.02	13.423		
7,800.0	7,228.9	7,188.3	7,187.1	29.7	16.9	-89.41	575.6	-1,416.7	548.7	507.3	41.45	13.239		
7,813.6	7,228.8	7,188.8	7,187.5	29.8	16.9	-89.45	575.6	-1,416.7	548.5	506.9	41.63	13.176 CC, ES		

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells Sec.20-T3N-R66W - Miller 34-20 - PDC (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	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)				
7,900.0	7,227.8	7,191.4	7,190.2	30.6	16.9	-89.73	575.8	-1,416.7	555.3	512.5	42.79	12.977	SF		
8,000.0	7,226.7	7,194.5	7,193.3	31.8	16.9	-90.05	575.9	-1,416.7	579.3	535.0	44.26	13.088			
8,100.0	7,225.6	7,197.5	7,196.3	33.1	16.9	-90.37	576.0	-1,416.7	618.7	572.9	45.85	13.496			
8,200.0	7,224.5	7,200.6	7,199.3	34.5	16.9	-90.68	576.1	-1,416.8	670.8	623.3	47.52	14.117			
8,300.0	7,223.4	7,204.0	7,202.7	36.1	16.9	-91.04	576.3	-1,416.8	733.0	683.7	49.27	14.875			
8,400.0	7,222.3	7,207.7	7,206.4	37.7	17.0	-91.42	576.5	-1,416.8	802.7	751.6	51.09	15.712			
8,500.0	7,221.2	7,211.6	7,210.4	39.5	17.0	-91.84	576.6	-1,416.9	878.4	825.4	52.96	16.586			
8,600.0	7,220.1	7,215.9	7,214.7	41.3	17.0	-92.28	576.8	-1,416.9	958.5	903.6	54.87	17.468			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Miller 4-20J (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)			
7,350.0	7,123.3	7,127.2	7,125.0	27.8	18.4	28.02	1,057.4	-607.0	973.7	947.1	26.65	36.540		
7,400.0	7,147.3	7,152.4	7,150.2	27.9	18.5	32.22	1,057.5	-607.6	931.3	905.0	26.30	35.406		
7,450.0	7,168.4	7,174.4	7,172.2	27.9	18.5	37.48	1,057.5	-608.2	887.6	860.8	26.87	33.031		
7,500.0	7,186.4	7,193.2	7,191.0	28.0	18.6	44.02	1,057.5	-608.7	842.9	814.3	28.57	29.506		
7,550.0	7,201.4	7,208.6	7,206.4	28.2	18.6	51.94	1,057.5	-609.1	797.4	766.0	31.35	25.438		
7,600.0	7,213.2	7,220.7	7,218.4	28.4	18.7	61.16	1,057.5	-609.4	751.3	716.5	34.80	21.590		
7,650.0	7,221.8	7,229.4	7,227.1	28.6	18.7	71.21	1,057.5	-609.6	705.0	666.7	38.22	18.446		
7,700.0	7,227.2	7,234.7	7,232.5	28.9	18.7	81.26	1,057.5	-609.8	658.7	617.8	40.91	16.100		
7,750.0	7,229.3	7,236.8	7,234.5	29.3	18.7	90.43	1,057.5	-609.8	612.7	570.1	42.60	14.384		
7,765.7	7,229.3	7,236.7	7,234.5	29.4	18.7	93.01	1,057.5	-609.8	598.4	555.5	42.94	13.935		
7,800.0	7,228.9	7,236.3	7,234.1	29.7	18.7	92.91	1,057.5	-609.8	567.5	524.1	43.37	13.084		
7,900.0	7,227.8	7,235.0	7,232.8	30.6	18.7	92.62	1,057.5	-609.8	479.7	435.0	44.71	10.729		
8,000.0	7,226.7	7,233.7	7,231.5	31.8	18.7	92.33	1,057.5	-609.7	397.8	351.6	46.18	8.614		
8,100.0	7,225.6	7,232.5	7,230.2	33.1	18.7	92.04	1,057.5	-609.7	326.2	278.4	47.77	6.828		
8,200.0	7,224.5	7,231.2	7,229.0	34.5	18.7	91.75	1,057.5	-609.7	273.0	223.5	49.44	5.520		
8,300.0	7,223.4	7,230.0	7,227.8	36.1	18.7	91.47	1,057.5	-609.6	250.2	199.0	51.20	4.888		
8,309.4	7,223.3	7,229.9	7,227.6	36.2	18.7	91.44	1,057.5	-609.6	250.1	198.7	51.37	4.868	CC, ES, SF	
8,400.0	7,222.3	7,228.8	7,226.5	37.7	18.7	91.19	1,057.5	-609.6	266.0	212.9	53.02	5.016		
8,500.0	7,221.2	7,227.6	7,225.3	39.5	18.7	90.92	1,057.5	-609.6	314.4	259.5	54.90	5.727		
8,600.0	7,220.1	7,226.4	7,224.1	41.3	18.7	90.64	1,057.5	-609.6	383.3	326.5	56.83	6.746		
8,700.0	7,219.0	7,225.2	7,223.0	43.1	18.7	90.37	1,057.5	-609.5	463.7	405.0	58.80	7.887		
8,800.0	7,217.9	7,224.0	7,221.8	45.0	18.7	90.11	1,057.5	-609.5	550.6	489.8	60.80	9.056		
8,900.0	7,216.8	7,222.9	7,220.7	46.9	18.7	89.84	1,057.5	-609.5	641.3	578.5	62.83	10.207		
9,000.0	7,215.7	7,221.7	7,219.5	48.9	18.7	89.58	1,057.5	-609.4	734.4	669.5	64.89	11.318		
9,100.0	7,214.7	7,220.6	7,218.4	50.9	18.7	89.32	1,057.5	-609.4	829.1	762.2	66.97	12.380		
9,200.0	7,213.6	7,219.5	7,217.3	52.9	18.7	89.07	1,057.5	-609.4	925.0	855.9	69.07	13.391		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Miller 44-20 - Encana (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 (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	7.0	7.0	0.0	0.0	57.85	236.2	375.9	444.0	444.0	0.01	N/A		
100.0	100.0	107.3	107.3	0.1	0.2	57.83	236.4	375.8	443.9	443.6	0.32	1,408.581	CC	
113.8	113.8	120.8	120.8	0.2	0.2	57.82	236.4	375.7	443.9	443.5	0.38	1,163.523		
200.0	200.0	205.0	205.0	0.4	0.4	57.82	236.5	375.9	444.1	443.3	0.80	556.652		
300.0	300.0	305.8	305.8	0.7	0.6	57.81	236.8	376.2	444.5	443.2	1.33	335.289		
400.0	400.0	408.5	408.5	1.0	0.8	57.86	236.4	376.3	444.4	442.6	1.80	246.966		
449.6	449.6	456.6	456.6	1.1	0.9	57.90	236.1	376.4	444.3	442.3	2.03	219.225		
500.0	500.0	505.9	505.9	1.2	1.0	57.93	236.0	376.6	444.4	442.1	2.26	196.742		
600.0	600.0	609.7	609.7	1.5	1.2	57.93	235.9	376.4	444.2	441.4	2.74	162.224		
620.2	620.2	629.4	629.4	1.6	1.3	163.98	235.8	376.2	444.1	441.3	2.82	157.218	ES	
700.0	700.0	707.7	707.7	1.8	1.4	164.01	235.8	376.0	445.1	441.9	3.17	140.274		
800.0	799.9	806.9	806.9	2.0	1.6	164.12	235.8	375.9	448.8	445.1	3.64	123.194		
900.0	899.7	905.6	905.5	2.3	1.9	164.29	236.0	375.9	455.2	451.1	4.14	110.014		
1,000.0	999.3	1,007.7	1,007.7	2.6	2.1	164.51	236.5	375.6	464.0	459.3	4.66	99.589		
1,100.0	1,098.6	1,108.1	1,108.1	2.9	2.4	164.81	236.5	375.1	474.9	469.7	5.16	91.943		
1,200.0	1,197.5	1,205.7	1,205.6	3.2	2.6	165.22	236.1	374.9	488.4	482.7	5.62	86.870		
1,300.0	1,296.1	1,302.3	1,302.2	3.6	2.7	165.66	235.9	375.0	504.8	498.7	6.07	83.141		
1,405.0	1,399.0	1,408.5	1,408.5	4.1	3.0	166.19	235.6	374.9	524.5	517.9	6.58	79.763		
1,500.0	1,492.0	1,500.0	1,500.0	4.6	3.2	166.68	235.5	374.7	543.6	536.5	7.07	76.940		
1,600.0	1,589.7	1,600.5	1,600.5	5.1	3.4	167.15	235.6	374.2	563.7	556.0	7.62	73.982		
1,700.0	1,687.5	1,698.6	1,698.6	5.6	3.7	167.58	235.5	373.5	583.4	575.2	8.18	71.313		
1,800.0	1,785.3	1,792.7	1,792.7	6.1	3.9	167.93	235.9	372.9	603.5	594.8	8.74	69.040		
1,900.0	1,883.1	1,893.7	1,893.7	6.7	4.2	168.31	236.1	372.5	623.7	614.4	9.32	66.952		
2,000.0	1,980.9	1,990.6	1,990.6	7.2	4.5	168.66	236.1	371.9	643.7	633.9	9.89	65.065		
2,100.0	2,078.7	2,086.3	2,086.2	7.7	4.7	169.00	236.0	371.7	664.0	653.6	10.42	63.742		
2,200.0	2,176.5	2,188.3	2,188.3	8.3	4.9	169.40	235.3	371.7	684.3	673.4	10.92	62.671		
2,300.0	2,274.3	2,285.9	2,285.9	8.8	5.1	169.76	234.5	371.3	704.2	692.7	11.46	61.448		
2,400.0	2,372.0	2,383.4	2,383.3	9.4	5.4	170.07	234.1	370.8	724.2	712.1	12.03	60.201		
2,500.0	2,469.8	2,482.3	2,482.3	10.0	5.6	170.38	233.4	370.4	744.1	731.6	12.59	59.092		
2,600.0	2,567.6	2,588.8	2,588.8	10.5	5.9	170.74	232.0	369.6	763.6	750.4	13.18	57.955		
2,700.0	2,665.4	2,686.5	2,686.4	11.1	6.1	171.03	230.7	368.2	782.4	768.7	13.76	56.846		
2,800.0	2,763.2	2,782.4	2,782.3	11.6	6.4	171.29	229.5	367.0	801.5	787.1	14.35	55.860		
2,900.0	2,861.0	2,885.0	2,884.9	12.2	6.7	171.59	228.0	365.8	820.5	805.5	14.95	54.876		
3,000.0	2,958.8	2,979.2	2,979.0	12.8	7.0	171.81	226.9	364.3	839.3	823.8	15.55	53.989		
3,100.0	3,056.6	3,079.1	3,079.0	13.3	7.3	172.03	226.1	362.9	858.5	842.3	16.16	53.119		
3,200.0	3,154.3	3,179.0	3,178.8	13.9	7.6	172.24	225.1	361.2	877.3	860.6	16.78	52.294		
3,300.0	3,252.1	3,272.7	3,272.6	14.5	7.9	172.38	224.8	359.5	896.3	878.9	17.38	51.573		
3,400.0	3,349.9	3,373.6	3,373.4	15.0	8.2	172.55	224.4	358.0	915.6	897.6	18.00	50.852		
3,500.0	3,447.7	3,471.3	3,471.1	15.6	8.5	172.68	224.2	356.1	934.5	915.9	18.62	50.194		
3,600.0	3,545.5	3,565.9	3,565.7	16.1	8.7	172.78	224.3	354.4	953.7	934.5	19.22	49.620		
3,700.0	3,643.3	3,667.4	3,667.2	16.7	9.0	172.91	224.3	352.9	973.1	953.2	19.85	49.032		
3,800.0	3,741.1	3,766.0	3,765.7	17.3	9.3	172.99	224.6	350.8	992.0	971.5	20.46	48.495	SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Miller 44-20 - PDC (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)			
0.0	0.0	9.0	9.0	0.0	0.0	44.09	341.9	331.2	476.0	476.0	0.01	N/A		
100.0	100.0	109.0	109.0	0.1	0.2	44.07	342.0	331.1	476.0	475.7	0.32	1,494.075		
200.0	200.0	207.1	207.1	0.4	0.4	44.07	342.2	331.2	476.2	475.4	0.80	592.935		
300.0	300.0	307.6	307.6	0.7	0.6	44.07	342.4	331.5	476.6	475.3	1.33	358.565		
400.0	400.0	411.4	411.4	1.0	0.8	44.11	342.0	331.6	476.4	474.6	1.80	263.952		
463.2	463.2	472.2	472.2	1.1	1.0	44.16	341.7	331.8	476.2	474.1	2.09	227.471		
500.0	500.0	508.2	508.2	1.2	1.0	44.17	341.6	331.9	476.3	474.0	2.26	210.425		
600.0	600.0	611.5	611.5	1.5	1.2	44.16	341.5	331.7	476.0	473.3	2.74	173.664		
619.4	619.4	630.6	630.5	1.6	1.3	150.21	341.5	331.5	476.0	473.2	2.82	168.499 CC, ES		
700.0	700.0	709.6	709.6	1.8	1.4	150.26	341.4	331.3	476.9	473.7	3.18	150.093		
800.0	799.9	808.8	808.8	2.0	1.6	150.46	341.4	331.2	480.2	476.6	3.65	131.649		
900.0	899.7	907.1	907.1	2.3	1.9	150.78	341.7	331.2	486.1	482.0	4.14	117.297		
1,000.0	999.3	1,009.1	1,009.1	2.6	2.1	151.18	342.1	330.9	494.2	489.5	4.67	105.830		
1,100.0	1,098.6	1,110.2	1,110.2	2.9	2.4	151.72	342.1	330.4	504.2	499.0	5.19	97.238		
1,200.0	1,197.5	1,208.2	1,208.2	3.2	2.6	152.40	341.7	330.2	516.5	510.8	5.66	91.325		
1,300.0	1,296.1	1,304.3	1,304.2	3.6	2.8	153.14	341.5	330.3	531.5	525.4	6.12	86.830		
1,405.0	1,399.0	1,410.8	1,410.8	4.1	3.0	154.03	341.3	330.2	549.7	543.1	6.65	82.656		
1,500.0	1,492.0	1,500.8	1,500.8	4.6	3.2	154.87	341.2	330.0	567.5	560.4	7.16	79.280		
1,600.0	1,589.7	1,602.5	1,602.5	5.1	3.4	155.74	341.2	329.5	586.3	578.6	7.74	75.784		
1,700.0	1,687.5	1,700.0	1,700.0	5.6	3.7	156.50	341.2	328.8	604.9	596.6	8.32	72.725		
1,800.0	1,785.3	1,793.9	1,793.9	6.1	3.9	157.18	341.5	328.2	623.9	615.0	8.90	70.130		
1,900.0	1,883.1	1,895.7	1,895.7	6.7	4.2	157.89	341.7	327.8	643.1	633.6	9.49	67.767		
2,000.0	1,980.9	1,992.1	1,992.1	7.2	4.5	158.53	341.7	327.2	662.2	652.1	10.08	65.672		
2,100.0	2,078.7	2,088.7	2,088.7	7.7	4.7	159.15	341.6	327.0	681.5	670.9	10.62	64.164		
2,200.0	2,176.5	2,191.4	2,191.3	8.3	4.9	159.84	340.9	327.0	700.7	689.6	11.13	62.936		
2,300.0	2,274.3	2,288.2	2,288.2	8.8	5.1	160.44	340.1	326.6	719.6	707.9	11.68	61.587		
2,400.0	2,372.0	2,385.6	2,385.6	9.4	5.4	160.98	339.7	326.1	738.8	726.5	12.26	60.239		
2,500.0	2,469.8	2,485.4	2,485.3	10.0	5.6	161.53	339.0	325.7	757.9	745.1	12.84	59.040		
2,600.0	2,567.6	2,592.2	2,592.1	10.5	5.9	162.12	337.6	324.9	776.5	763.1	13.43	57.832		
2,700.0	2,665.4	2,688.9	2,688.8	11.1	6.2	162.59	336.3	323.5	794.6	780.6	14.02	56.674		
2,800.0	2,763.2	2,785.5	2,785.4	11.6	6.4	163.05	335.1	322.3	812.9	798.3	14.61	55.637		
2,900.0	2,861.0	2,887.8	2,887.7	12.2	6.7	163.53	333.6	321.0	831.2	816.0	15.22	54.620		
3,000.0	2,958.8	2,981.3	2,981.1	12.8	7.0	163.92	332.6	319.6	849.4	833.6	15.82	53.708		
3,100.0	3,056.6	3,081.8	3,081.7	13.3	7.3	164.31	331.7	318.2	868.0	851.5	16.44	52.812		
3,200.0	3,154.3	3,180.6	3,180.5	13.9	7.6	164.67	330.8	316.5	886.3	869.2	17.05	51.978		
3,300.0	3,252.1	3,274.4	3,274.2	14.5	7.9	164.97	330.4	314.8	904.8	887.1	17.66	51.244		
3,400.0	3,349.9	3,375.3	3,375.1	15.0	8.2	165.29	330.0	313.3	923.6	905.3	18.28	50.513		
3,500.0	3,447.7	3,472.3	3,472.1	15.6	8.5	165.56	329.8	311.4	942.1	923.2	18.90	49.853		
3,600.0	3,545.5	3,567.1	3,566.9	16.1	8.7	165.80	330.0	309.7	961.0	941.5	19.50	49.271		
3,700.0	3,643.3	3,668.6	3,668.4	16.7	9.1	166.06	330.0	308.2	980.0	959.8	20.13	48.681		
3,800.0	3,741.1	3,766.2	3,765.9	17.3	9.3	166.27	330.3	306.1	998.6	977.9	20.74	48.148 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Miller 5 (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)			
7,350.0	7,123.3	7,119.6	7,116.9	27.8	19.6	13.48	1,099.3	-739.2	987.2	962.2	25.00	39.494		
7,400.0	7,147.3	7,143.0	7,140.3	27.9	19.7	15.73	1,099.3	-739.5	943.7	920.6	23.14	40.782		
7,450.0	7,168.4	7,163.6	7,160.9	27.9	19.7	18.75	1,099.4	-739.8	898.8	877.1	21.71	41.409		
7,500.0	7,186.4	7,181.3	7,178.6	28.0	19.8	22.90	1,099.5	-739.9	852.7	831.5	21.11	40.384		
7,550.0	7,201.4	7,196.1	7,193.4	28.2	19.8	28.77	1,099.6	-740.1	805.5	783.5	22.02	36.575		
7,600.0	7,213.2	7,207.7	7,205.0	28.4	19.8	37.27	1,099.6	-740.1	757.5	732.4	25.20	30.066		
7,650.0	7,221.8	7,216.3	7,213.6	28.6	19.9	49.58	1,099.7	-740.2	709.0	678.0	30.98	22.887		
7,700.0	7,227.2	7,221.7	7,219.0	28.9	19.9	66.40	1,099.7	-740.2	660.1	621.9	38.14	17.308		
7,750.0	7,229.3	7,224.0	7,221.3	29.3	19.9	85.80	1,099.7	-740.2	611.0	567.7	43.29	14.116		
7,765.7	7,229.3	7,224.1	7,221.4	29.4	19.9	91.70	1,099.7	-740.2	595.6	551.6	44.04	13.526		
7,800.0	7,228.9	7,224.0	7,221.3	29.7	19.9	91.62	1,099.7	-740.2	562.1	517.6	44.46	12.641		
7,900.0	7,227.8	7,223.5	7,220.8	30.6	19.9	91.40	1,099.7	-740.2	464.8	419.0	45.81	10.147		
8,000.0	7,226.7	7,223.0	7,220.3	31.8	19.9	91.17	1,099.7	-740.2	369.0	321.7	47.28	7.804		
8,100.0	7,225.6	7,222.5	7,219.9	33.1	19.9	90.94	1,099.7	-740.2	276.2	227.3	48.87	5.652		
8,200.0	7,224.5	7,222.1	7,219.4	34.5	19.9	90.71	1,099.7	-740.2	190.8	140.3	50.55	3.775		
8,300.0	7,223.4	7,221.6	7,218.9	36.1	19.9	90.47	1,099.7	-740.2	128.6	76.3	52.31	2.458		
8,349.4	7,222.9	7,221.3	7,218.6	36.9	19.9	90.35	1,099.7	-740.2	118.7	65.5	53.21	2.231	CC, ES, SF	
8,400.0	7,222.3	7,221.1	7,218.4	37.7	19.9	90.23	1,099.7	-740.2	129.0	74.9	54.13	2.384		
8,500.0	7,221.2	7,220.6	7,217.9	39.5	19.9	89.99	1,099.7	-740.2	191.8	135.8	56.01	3.424		
8,600.0	7,220.1	7,220.1	7,217.4	41.3	19.9	89.75	1,099.7	-740.2	277.3	219.4	57.94	4.786		
8,700.0	7,219.0	7,219.6	7,216.9	43.1	19.9	89.50	1,099.7	-740.2	370.2	310.2	59.91	6.179		
8,800.0	7,217.9	7,219.1	7,216.4	45.0	19.9	89.26	1,099.7	-740.2	466.0	404.1	61.91	7.527		
8,900.0	7,216.8	7,218.5	7,215.8	46.9	19.9	89.00	1,099.7	-740.2	563.3	499.3	63.94	8.809		
9,000.0	7,215.7	7,218.0	7,215.3	48.9	19.9	88.75	1,099.7	-740.2	661.3	595.3	66.00	10.020		
9,100.0	7,214.7	7,217.5	7,214.8	50.9	19.9	88.49	1,099.7	-740.2	759.9	691.8	68.08	11.162		
9,200.0	7,213.6	7,216.9	7,214.2	52.9	19.9	88.23	1,099.7	-740.2	858.8	788.7	70.18	12.238		
9,300.0	7,212.5	7,216.4	7,213.7	55.0	19.9	87.97	1,099.7	-740.2	958.0	885.7	72.29	13.251		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Raymond 15C-29HZ (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:		0.0 ft
Survey Program: 17-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			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	-130.99	-560.5	-645.0	855.7						
100.0	100.0	54.1	54.1	0.1	0.1	-130.99	-560.5	-645.1	854.5	854.3	0.26	3,253.649			
200.0	200.0	153.2	153.2	0.4	0.4	-131.00	-560.7	-645.1	854.8	854.0	0.80	1,068.213			
300.0	300.0	254.5	254.5	0.7	0.6	-130.99	-560.7	-645.3	854.9	853.5	1.33	644.459			
400.0	400.0	353.9	353.9	1.0	0.9	-130.95	-560.3	-645.7	854.9	853.1	1.85	461.327			
500.0	500.0	452.4	452.4	1.2	1.1	-130.91	-560.0	-646.3	855.2	852.8	2.38	358.609			
600.0	600.0	550.9	550.9	1.5	1.4	-130.88	-559.9	-646.9	855.6	852.6	2.92	293.391			
700.0	700.0	650.4	650.3	1.8	1.7	-24.84	-560.0	-647.5	854.9	851.5	3.43	249.325			
800.0	799.9	752.3	752.3	2.0	1.9	-24.98	-560.4	-647.8	851.8	847.9	3.93	216.502			
900.0	899.7	855.1	855.1	2.3	2.2	-25.20	-560.4	-648.0	846.0	841.6	4.45	190.088			
1,000.0	999.3	956.5	956.5	2.6	2.4	-25.49	-559.9	-648.2	837.6	832.6	4.98	168.310			
1,100.0	1,098.6	1,057.4	1,057.4	2.9	2.7	-25.88	-559.2	-648.3	826.6	821.1	5.51	150.010			
1,200.0	1,197.5	1,157.3	1,157.3	3.2	2.9	-26.37	-558.4	-648.3	813.1	807.1	6.05	134.337			
1,300.0	1,296.1	1,254.7	1,254.6	3.6	3.2	-26.96	-557.5	-648.4	797.5	790.9	6.60	120.755			
1,405.0	1,399.0	1,357.4	1,357.3	4.1	3.5	-27.70	-556.5	-648.7	778.7	771.5	7.20	108.101			
1,500.0	1,492.0	1,449.5	1,449.5	4.6	3.7	-28.30	-555.4	-649.3	760.7	752.9	7.76	97.980			
1,600.0	1,589.7	1,546.0	1,546.0	5.1	4.0	-28.91	-553.9	-650.4	742.0	733.6	8.37	88.681			
1,700.0	1,687.5	1,632.5	1,632.4	5.6	4.2	-29.31	-551.4	-653.3	724.0	715.0	8.95	80.858			
1,800.0	1,785.3	1,728.5	1,728.1	6.1	4.5	-29.59	-548.3	-659.1	707.6	698.1	9.57	73.927			
1,900.0	1,883.1	1,822.4	1,821.8	6.7	4.7	-29.80	-544.4	-665.5	691.2	681.0	10.20	67.771			
2,000.0	1,980.9	1,917.8	1,916.6	7.2	5.0	-29.85	-539.7	-673.9	675.6	664.7	10.84	62.298			
2,100.0	2,078.7	2,009.0	2,007.2	7.7	5.3	-29.79	-535.0	-683.5	661.0	649.5	11.49	57.533			
2,200.0	2,176.5	2,094.0	2,091.4	8.3	5.6	-29.63	-530.4	-694.0	647.6	635.5	12.12	53.411			
2,300.0	2,274.3	2,179.0	2,175.4	8.8	5.9	-29.35	-525.9	-706.1	635.6	622.9	12.77	49.775			
2,400.0	2,372.0	2,271.1	2,266.0	9.4	6.2	-28.90	-521.4	-721.8	625.9	612.5	13.45	46.542			
2,500.0	2,469.8	2,379.8	2,372.9	10.0	6.6	-28.25	-515.2	-741.0	616.1	602.0	14.18	43.457			
2,600.0	2,567.6	2,480.1	2,471.5	10.5	7.0	-27.62	-509.3	-758.7	606.3	591.4	14.89	40.722			
2,700.0	2,665.4	2,586.6	2,575.9	11.1	7.4	-26.80	-501.3	-777.6	595.4	579.8	15.63	38.097			
2,800.0	2,763.2	2,691.2	2,678.5	11.6	7.9	-25.87	-492.1	-795.9	583.7	567.3	16.36	35.677			
2,900.0	2,861.0	2,799.1	2,784.2	12.2	8.3	-24.77	-481.0	-814.3	570.9	553.7	17.11	33.366			
3,000.0	2,958.8	2,901.4	2,884.4	12.8	8.8	-23.56	-468.6	-831.4	556.7	538.9	17.84	31.210			
3,100.0	3,056.6	2,999.6	2,980.2	13.3	9.2	-22.25	-456.2	-848.4	543.1	524.5	18.54	29.293			
3,200.0	3,154.3	3,095.0	3,073.6	13.9	9.7	-21.00	-444.6	-864.4	529.6	510.4	19.21	27.566			
3,300.0	3,252.1	3,192.7	3,169.3	14.5	10.1	-19.74	-433.8	-880.9	517.0	497.1	19.88	26.011			
3,400.0	3,349.9	3,287.0	3,261.9	15.0	10.5	-18.63	-424.7	-896.3	505.0	484.5	20.52	24.611			
3,500.0	3,447.7	3,385.8	3,359.0	15.6	10.9	-17.52	-416.2	-912.3	493.7	472.5	21.16	23.328			
3,600.0	3,545.5	3,488.3	3,460.0	16.1	11.3	-16.45	-408.2	-927.9	482.2	460.4	21.79	22.133			
3,700.0	3,643.3	3,590.9	3,561.3	16.7	11.7	-15.52	-401.0	-942.2	470.1	447.7	22.42	20.971			
3,800.0	3,741.1	3,693.4	3,662.9	17.3	12.1	-14.73	-394.8	-954.9	457.4	434.3	23.06	19.837			
3,900.0	3,838.9	3,795.9	3,764.6	17.9	12.5	-14.09	-389.5	-966.2	443.9	420.2	23.70	18.727			
4,000.0	3,936.6	3,899.0	3,867.0	18.4	12.9	-13.53	-384.5	-976.3	429.6	405.3	24.32	17.666			
4,100.0	4,034.4	4,000.9	3,968.5	19.0	13.2	-13.07	-379.9	-985.2	414.6	389.7	24.92	16.634			
4,200.0	4,132.2	4,101.2	4,068.4	19.6	13.5	-12.72	-376.0	-992.8	398.9	373.4	25.53	15.626			
4,300.0	4,230.0	4,204.2	4,171.1	20.1	13.8	-12.45	-372.4	-999.9	382.8	356.7	26.13	14.649			
4,400.0	4,327.8	4,307.1	4,273.8	20.7	14.1	-12.41	-369.6	-1,004.9	365.3	338.6	26.72	13.670			
4,500.0	4,425.6	4,409.0	4,375.6	21.3	14.3	-12.61	-367.5	-1,008.3	346.7	319.4	27.33	12.689			
4,600.0	4,523.4	4,510.4	4,477.1	21.8	14.6	-13.08	-366.2	-1,010.0	327.2	299.3	27.96	11.703			
4,700.0	4,621.2	4,611.1	4,577.7	22.4	14.8	-13.86	-365.6	-1,010.3	306.8	278.1	28.61	10.720			
4,800.0	4,718.9	4,711.1	4,677.7	23.0	15.0	-14.87	-365.0	-1,009.5	285.6	256.3	29.28	9.752			
4,900.0	4,816.7	4,810.6	4,777.2	23.5	15.2	-16.14	-364.5	-1,007.9	263.7	233.7	29.99	8.793			
5,000.0	4,914.5	4,906.2	4,872.8	24.1	15.4	-17.53	-363.7	-1,006.3	241.9	211.2	30.72	7.874			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells Sec.20-T3N-R66W - Raymond 15C-29HZ (Exist) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft
Survey Program:		17-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			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,088.2	5,000.7	4,989.3	4,955.8	24.6	15.6	-18.74	-362.9	-1,006.2	223.7	192.4	31.38	7.129			
5,100.0	5,012.3	5,000.7	4,967.3	24.7	15.6	-18.90	-362.8	-1,006.3	221.4	189.9	31.48	7.034			
5,200.0	5,110.5	5,099.0	5,065.6	25.1	15.8	-20.20	-362.0	-1,006.9	203.7	171.5	32.25	6.317			
5,300.0	5,209.3	5,198.6	5,165.2	25.4	16.0	-21.67	-361.7	-1,006.7	189.0	156.0	33.00	5.727			
5,400.0	5,308.6	5,297.6	5,264.2	25.7	16.2	-23.22	-362.1	-1,006.0	177.6	143.9	33.72	5.267			
5,500.0	5,408.3	5,397.2	5,363.8	25.9	16.4	-24.59	-362.6	-1,005.1	169.6	135.2	34.37	4.934			
5,600.0	5,508.1	5,497.7	5,464.3	26.1	16.6	-25.61	-363.0	-1,004.1	164.7	129.7	34.92	4.715			
5,691.9	5,600.0	5,590.1	5,556.7	26.3	16.8	-132.18	-363.1	-1,002.9	162.5	127.0	35.49	4.580			
5,700.0	5,608.1	5,598.2	5,564.8	26.3	16.8	-132.21	-363.1	-1,002.8	162.4	126.9	35.52	4.572			
5,800.0	5,708.1	5,697.9	5,664.5	26.4	17.0	-132.57	-363.2	-1,001.4	161.5	125.5	35.99	4.487			
5,900.0	5,808.1	5,797.4	5,764.0	26.6	17.2	-133.04	-363.7	-1,000.0	160.8	124.3	36.47	4.408			
6,000.0	5,908.1	5,896.7	5,863.2	26.7	17.4	-133.60	-364.6	-998.7	160.5	123.5	36.96	4.341			
6,016.5	5,924.6	5,913.1	5,879.6	26.7	17.5	-133.69	-364.8	-998.5	160.4	123.4	37.05	4.331	CC		
6,100.0	6,008.1	5,996.0	5,962.5	26.8	17.6	-134.21	-366.0	-997.6	160.6	123.1	37.47	4.286	ES		
6,200.0	6,108.1	6,095.0	6,061.5	27.0	17.8	-134.86	-367.8	-996.8	161.3	123.3	37.98	4.247			
6,300.0	6,208.1	6,194.4	6,160.8	27.2	18.0	-135.57	-370.0	-996.3	162.5	124.0	38.51	4.221			
6,400.0	6,308.1	6,294.5	6,261.0	27.3	18.3	-136.07	-372.0	-996.2	163.8	124.8	39.00	4.201			
6,500.0	6,408.1	6,394.1	6,360.5	27.5	18.5	-136.61	-374.1	-996.1	165.3	125.8	39.50	4.185			
6,557.3	6,465.4	6,451.4	6,417.8	27.6	18.6	-136.75	-375.1	-996.4	166.2	126.5	39.77	4.180	SF		
6,600.0	6,508.1	6,493.8	6,460.2	27.6	18.7	-138.00	-375.7	-996.8	167.8	128.1	39.69	4.228			
6,650.0	6,557.9	6,543.2	6,509.6	27.7	18.8	-138.83	-376.5	-997.2	172.1	132.3	39.79	4.324			
6,700.0	6,607.3	6,592.3	6,558.6	27.7	18.9	-140.15	-377.3	-997.8	178.9	139.0	39.86	4.488			
6,750.0	6,656.1	6,640.5	6,606.9	27.8	19.0	-141.80	-378.1	-998.4	188.5	148.6	39.85	4.730			
6,800.0	6,704.1	6,687.9	6,654.2	27.8	19.1	-143.60	-378.9	-999.2	201.0	161.3	39.71	5.061			
6,850.0	6,751.0	6,734.4	6,700.8	27.8	19.3	-145.45	-379.5	-1,000.2	216.4	177.0	39.42	5.490			
6,900.0	6,796.7	6,776.7	6,743.0	27.8	19.4	-147.12	-380.4	-1,001.2	235.1	196.2	38.93	6.039			
6,950.0	6,841.0	6,810.3	6,776.6	27.8	19.4	-148.25	-381.9	-1,002.0	257.8	219.6	38.20	6.748			
7,000.0	6,883.7	6,837.7	6,803.8	27.8	19.5	-148.94	-384.5	-1,003.0	285.3	248.0	37.27	7.655			
7,050.0	6,924.7	6,868.0	6,833.8	27.8	19.6	-149.75	-388.9	-1,004.2	317.3	281.1	36.21	8.763			
7,100.0	6,963.6	6,883.7	6,849.2	27.8	19.6	-149.15	-391.7	-1,004.9	353.0	318.0	34.97	10.093			
7,150.0	7,000.4	6,902.9	6,868.0	27.8	19.6	-148.54	-395.7	-1,005.8	391.9	358.2	33.71	11.628			
7,200.0	7,034.9	6,921.3	6,885.9	27.8	19.7	-147.48	-399.9	-1,006.8	433.5	401.0	32.44	13.363			
7,250.0	7,067.0	6,938.5	6,902.6	27.8	19.7	-145.88	-404.1	-1,007.4	477.1	445.8	31.27	15.255			
7,300.0	7,096.5	6,954.0	6,917.5	27.8	19.7	-143.44	-408.1	-1,007.8	522.3	492.0	30.37	17.199			
7,350.0	7,123.3	6,954.0	6,917.5	27.8	19.7	-137.10	-408.1	-1,007.8	569.1	538.5	30.60	18.597			
7,400.0	7,147.3	6,965.5	6,928.6	27.9	19.7	-130.81	-411.3	-1,008.0	616.8	585.3	31.48	19.595			
7,450.0	7,168.4	6,968.9	6,931.8	27.9	19.7	-119.16	-412.3	-1,008.0	665.4	631.0	34.38	19.354			
7,500.0	7,186.4	6,970.5	6,933.4	28.0	19.7	-101.89	-412.7	-1,008.1	714.5	676.1	38.36	18.627			
7,550.0	7,201.4	6,970.7	6,933.5	28.2	19.7	-79.98	-412.8	-1,008.1	763.7	723.6	40.18	19.010			
7,600.0	7,213.2	6,969.5	6,932.4	28.4	19.7	-58.99	-412.4	-1,008.0	813.0	775.6	37.41	21.734			
7,650.0	7,221.8	6,967.1	6,930.1	28.6	19.7	-43.35	-411.7	-1,008.0	862.1	829.6	32.48	26.547			
7,700.0	7,227.2	6,954.0	6,917.5	28.9	19.7	-31.59	-408.1	-1,007.8	910.9	883.5	27.39	33.252			
7,750.0	7,229.3	6,954.0	6,917.5	29.3	19.7	-25.40	-408.1	-1,007.8	959.0	934.4	24.62	38.957			
7,765.7	7,229.3	6,954.0	6,917.5	29.4	19.7	-23.86	-408.1	-1,007.8	973.9	950.0	23.97	40.625			



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Raymond 15N-29HZ (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft	
Survey Program: 17-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)			
0.0	0.0	0.0	0.0	0.0	0.0	-129.66	-559.7	-675.2	878.2					
100.0	100.0	58.4	58.3	0.1	0.1	-129.66	-559.7	-675.2	877.0	876.7	0.27	3,201.517		
200.0	200.0	159.9	159.9	0.4	0.4	-129.64	-559.2	-674.9	876.5	875.7	0.82	1,071.139		
300.0	300.0	256.3	256.3	0.7	0.7	-129.61	-558.7	-675.1	876.3	874.9	1.34	654.764		
308.2	308.2	264.2	264.2	0.7	0.7	-129.61	-558.6	-675.1	876.3	874.9	1.38	634.439		
400.0	400.0	354.7	354.7	1.0	0.9	-129.56	-558.2	-675.6	876.4	874.5	1.86	470.256		
500.0	500.0	456.3	456.3	1.2	1.2	-129.52	-557.7	-676.1	876.4	874.0	2.40	365.942		
600.0	600.0	556.2	556.2	1.5	1.4	-129.48	-557.2	-676.4	876.4	873.4	2.92	299.799		
700.0	700.0	653.0	653.0	1.8	1.7	-23.41	-556.7	-677.0	875.3	871.9	3.43	255.228		
800.0	799.9	751.8	751.8	2.0	1.9	-23.48	-556.4	-677.9	872.2	868.3	3.93	221.881		
900.0	899.7	853.8	853.7	2.3	2.2	-23.69	-556.5	-678.1	866.5	862.0	4.45	194.831		
1,000.0	999.3	952.4	952.4	2.6	2.4	-23.97	-556.6	-678.5	858.4	853.4	4.97	172.689		
1,100.0	1,098.6	1,050.8	1,050.8	2.9	2.7	-24.33	-556.6	-679.0	848.1	842.6	5.50	154.215		
1,200.0	1,197.5	1,150.3	1,150.3	3.2	2.9	-24.79	-556.6	-679.5	835.4	829.4	6.04	138.360		
1,300.0	1,296.1	1,244.4	1,244.4	3.6	3.2	-25.33	-556.5	-680.2	820.5	813.9	6.58	124.684		
1,405.0	1,399.0	1,321.0	1,320.9	4.1	3.4	-25.73	-556.0	-682.9	804.3	797.1	7.11	113.167		
1,500.0	1,492.0	1,401.4	1,401.1	4.6	3.6	-25.88	-554.5	-689.2	790.7	783.1	7.64	103.504		
1,600.0	1,589.7	1,497.0	1,495.8	5.1	3.9	-25.75	-551.4	-701.5	779.2	770.9	8.24	94.603		
1,700.0	1,687.5	1,573.3	1,571.0	5.6	4.2	-25.45	-547.8	-713.9	769.1	760.3	8.81	87.302		
1,800.0	1,785.3	1,668.0	1,664.1	6.1	4.5	-24.98	-542.8	-730.5	759.8	750.4	9.46	80.335		
1,900.0	1,883.1	1,767.5	1,761.9	6.7	4.9	-24.48	-537.8	-748.1	751.0	740.8	10.14	74.053		
2,000.0	1,980.9	1,871.3	1,864.0	7.2	5.3	-23.98	-532.9	-766.0	742.0	731.1	10.83	68.515		
2,100.0	2,078.7	1,977.5	1,968.9	7.7	5.6	-23.63	-528.8	-782.2	732.0	720.5	11.51	63.573		
2,200.0	2,176.5	2,077.0	2,067.2	8.3	6.0	-23.32	-525.0	-796.8	721.6	709.4	12.19	59.187		
2,300.0	2,274.3	2,175.2	2,164.3	8.8	6.4	-22.97	-521.0	-811.5	711.4	698.5	12.87	55.275		
2,400.0	2,372.0	2,268.1	2,255.9	9.4	6.8	-22.58	-517.1	-826.3	701.8	688.3	13.55	51.800		
2,500.0	2,469.8	2,380.9	2,367.1	10.0	7.2	-22.07	-511.7	-843.9	691.7	677.4	14.28	48.429		
2,600.0	2,567.6	2,480.4	2,465.6	10.5	7.6	-21.71	-507.1	-857.6	680.3	665.3	14.96	45.463		
2,700.0	2,665.4	2,573.8	2,557.9	11.1	8.0	-21.34	-503.1	-871.4	669.8	654.2	15.63	42.844		
2,800.0	2,763.2	2,670.5	2,653.4	11.6	8.4	-20.88	-498.7	-886.4	659.9	643.6	16.32	40.437		
2,900.0	2,861.0	2,763.4	2,744.9	12.2	8.8	-20.38	-494.4	-901.6	650.7	633.7	17.00	38.285		
3,000.0	2,958.8	2,859.8	2,839.6	12.8	9.2	-19.76	-489.6	-918.7	642.3	624.7	17.68	36.330		
3,100.0	3,056.6	2,963.9	2,942.0	13.3	9.7	-19.06	-484.3	-936.9	633.9	615.5	18.38	34.492		
3,200.0	3,154.3	3,068.2	3,044.7	13.9	10.1	-18.38	-478.8	-954.4	624.9	605.8	19.06	32.784		
3,300.0	3,252.1	3,174.0	3,149.0	14.5	10.5	-17.76	-473.5	-970.7	614.9	595.1	19.74	31.145		
3,400.0	3,349.9	3,271.5	3,245.2	15.0	11.0	-17.14	-468.1	-985.5	604.5	584.1	20.40	29.633		
3,500.0	3,447.7	3,368.7	3,341.1	15.6	11.4	-16.50	-462.9	-1,000.7	594.6	573.6	21.04	28.257		
3,600.0	3,545.5	3,466.5	3,437.6	16.1	11.8	-15.91	-458.5	-1,015.8	585.2	563.5	21.69	26.977		
3,700.0	3,643.3	3,565.1	3,535.1	16.7	12.2	-15.38	-455.0	-1,030.7	576.0	553.6	22.34	25.782		
3,800.0	3,741.1	3,666.2	3,635.0	17.3	12.6	-14.83	-451.3	-1,045.9	566.7	543.7	22.98	24.660		
3,900.0	3,838.9	3,767.0	3,734.5	17.9	13.0	-14.21	-447.1	-1,061.1	557.2	533.6	23.62	23.594		
4,000.0	3,936.6	3,872.5	3,838.6	18.4	13.5	-13.43	-441.5	-1,077.0	547.3	523.0	24.26	22.563		
4,100.0	4,034.4	3,957.4	3,922.5	19.0	13.8	-12.84	-437.6	-1,089.8	537.8	513.0	24.83	21.658		
4,200.0	4,132.2	4,044.8	4,008.5	19.6	14.2	-12.20	-434.7	-1,105.1	531.2	505.8	25.42	20.893		
4,300.0	4,230.0	4,148.3	4,109.9	20.1	14.8	-11.14	-429.3	-1,125.2	525.5	499.4	26.05	20.171		
4,400.0	4,327.8	4,252.8	4,212.4	20.7	15.3	-10.01	-423.2	-1,144.8	519.0	492.4	26.67	19.464		
4,500.0	4,425.6	4,360.3	4,318.0	21.3	15.7	-8.89	-416.8	-1,163.3	511.4	484.1	27.28	18.747		
4,600.0	4,523.4	4,455.6	4,412.0	21.8	16.2	-8.02	-412.0	-1,178.5	503.1	475.3	27.86	18.061		
4,700.0	4,621.2	4,550.2	4,505.1	22.4	16.6	-7.15	-408.0	-1,194.7	496.3	467.9	28.44	17.455		
4,800.0	4,718.9	4,656.4	4,609.6	23.0	17.1	-6.09	-403.0	-1,212.9	489.5	460.5	29.04	16.857		
4,900.0	4,816.7	4,756.2	4,707.8	23.5	17.5	-4.96	-397.1	-1,229.6	482.1	452.5	29.62	16.276		

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Raymond 15N-29HZ (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 17-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	4,914.5	4,859.5	4,809.6	24.1	18.0	-3.74	-390.8	-1,246.3	474.2	444.0	30.20	15.701		
5,088.2	5,000.7	4,951.2	4,900.0	24.6	18.4	-2.71	-385.6	-1,260.3	466.8	436.1	30.71	15.200		
5,100.0	5,012.3	4,963.7	4,912.4	24.7	18.4	-2.57	-384.9	-1,262.1	465.8	435.0	30.79	15.130		
5,200.0	5,110.5	5,070.2	5,017.7	25.1	18.9	-1.46	-379.5	-1,276.5	458.2	426.9	31.37	14.607		
5,300.0	5,209.3	5,182.0	5,128.8	25.4	19.3	-0.43	-374.5	-1,288.9	452.1	420.2	31.91	14.167		
5,400.0	5,308.6	5,287.9	5,234.2	25.7	19.6	0.29	-371.3	-1,298.2	447.8	415.4	32.38	13.828		
5,500.0	5,408.3	5,393.8	5,339.9	25.9	19.9	0.70	-370.0	-1,305.1	445.3	412.5	32.80	13.577		
5,600.0	5,508.1	5,506.7	5,452.6	26.1	20.2	1.02	-368.9	-1,310.4	444.6	411.5	33.17	13.405		
5,653.6	5,561.7	5,565.8	5,511.8	26.2	20.3	1.08	-368.8	-1,311.6	444.5	411.1	33.34	13.330	CC	
5,691.9	5,600.0	5,606.8	5,552.7	26.3	20.4	-104.98	-368.9	-1,312.0	444.6	411.0	33.53	13.258		
5,700.0	5,608.1	5,615.1	5,561.1	26.3	20.4	-104.99	-369.0	-1,312.0	444.6	411.1	33.57	13.246		
5,800.0	5,708.1	5,717.0	5,662.9	26.4	20.6	-105.04	-369.5	-1,312.3	445.0	411.0	34.00	13.090		
5,900.0	5,808.1	5,817.4	5,763.3	26.6	20.8	-105.14	-370.3	-1,312.3	445.3	410.8	34.43	12.931		
6,000.0	5,908.1	5,916.1	5,862.0	26.7	20.9	-105.28	-371.4	-1,312.3	445.5	410.7	34.86	12.779	ES	
6,100.0	6,008.1	6,015.6	5,961.5	26.8	21.1	-105.45	-372.8	-1,312.5	446.1	410.8	35.30	12.636		
6,200.0	6,108.1	6,115.2	6,061.1	27.0	21.3	-105.68	-374.8	-1,312.6	446.7	411.0	35.75	12.498		
6,300.0	6,208.1	6,215.8	6,161.7	27.2	21.5	-105.78	-375.7	-1,313.0	447.3	411.1	36.19	12.360		
6,400.0	6,308.1	6,316.0	6,261.9	27.3	21.7	-105.89	-376.6	-1,313.3	447.9	411.3	36.64	12.225		
6,500.0	6,408.1	6,417.5	6,363.4	27.5	21.9	-106.09	-378.2	-1,313.2	448.2	411.1	37.09	12.084		
6,557.3	6,465.4	6,476.0	6,421.8	27.6	22.0	-106.25	-379.4	-1,312.9	448.2	410.9	37.35	12.000		
6,559.9	6,468.0	6,478.6	6,424.5	27.6	22.0	-107.25	-379.5	-1,312.8	448.2	411.0	37.28	12.022		
6,600.0	6,508.1	6,519.6	6,465.5	27.6	22.0	-107.50	-380.3	-1,312.5	448.5	411.1	37.40	11.992		
6,650.0	6,557.9	6,569.8	6,515.6	27.7	22.1	-108.09	-381.3	-1,312.0	449.7	412.2	37.54	11.979	SF	
6,700.0	6,607.3	6,617.7	6,563.5	27.7	22.2	-108.97	-382.5	-1,311.5	452.0	414.4	37.66	12.003		
6,750.0	6,656.1	6,655.0	6,600.8	27.8	22.3	-109.84	-384.1	-1,311.0	456.0	418.3	37.72	12.088		
6,800.0	6,704.1	6,698.0	6,643.5	27.8	22.3	-111.31	-388.6	-1,310.7	462.6	424.8	37.77	12.247		
6,850.0	6,751.0	6,722.1	6,667.3	27.8	22.4	-112.00	-392.6	-1,310.7	472.6	434.9	37.70	12.537		
6,900.0	6,796.7	6,741.0	6,685.8	27.8	22.4	-112.25	-396.5	-1,310.8	486.5	448.9	37.57	12.949		
6,950.0	6,841.0	6,773.9	6,717.6	27.8	22.4	-113.41	-404.6	-1,311.4	503.9	466.4	37.42	13.465		
7,000.0	6,883.7	6,795.6	6,738.4	27.8	22.5	-113.59	-410.8	-1,312.0	525.1	487.9	37.22	14.111		
7,050.0	6,924.7	6,826.0	6,767.2	27.8	22.5	-114.36	-420.6	-1,312.9	550.3	513.3	36.99	14.878		
7,100.0	6,963.6	6,826.0	6,767.2	27.8	22.5	-111.99	-420.6	-1,312.9	578.5	541.6	36.87	15.692		
7,150.0	7,000.4	6,844.3	6,784.3	27.8	22.5	-111.01	-427.0	-1,313.6	610.0	573.3	36.77	16.591		
7,200.0	7,034.9	6,855.6	6,794.8	27.8	22.6	-108.90	-431.2	-1,314.1	644.3	607.5	36.85	17.486		
7,250.0	7,067.0	6,869.0	6,807.1	27.8	22.6	-106.58	-436.4	-1,314.6	681.1	644.0	37.06	18.376		
7,300.0	7,096.5	6,871.9	6,809.8	27.8	22.6	-102.49	-437.6	-1,314.7	719.8	682.2	37.60	19.142		
7,350.0	7,123.3	6,878.8	6,816.1	27.8	22.6	-98.32	-440.3	-1,315.0	760.1	721.9	38.24	19.880		
7,400.0	7,147.3	6,882.1	6,819.1	27.9	22.6	-93.13	-441.7	-1,315.0	801.8	762.8	38.99	20.567		
7,450.0	7,168.4	6,882.4	6,819.4	27.9	22.6	-87.05	-441.9	-1,315.0	844.4	804.8	39.67	21.286		
7,500.0	7,186.4	6,880.3	6,817.5	28.0	22.6	-80.30	-441.0	-1,315.0	887.8	847.7	40.08	22.151		
7,550.0	7,201.4	6,876.1	6,813.6	28.2	22.6	-73.19	-439.3	-1,314.9	931.5	891.5	40.03	23.271		
7,600.0	7,213.2	6,869.0	6,807.1	28.4	22.6	-65.96	-436.4	-1,314.6	975.4	935.9	39.43	24.736		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells Sec.20-T3N-R66W - Raymond 16N-29HZ (Exist) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft
Survey Program:		17-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)				
0.0	0.0	0.0	0.0	0.0	0.0	-140.21	-561.6	-467.7	732.1						
100.0	100.0	57.0	57.0	0.1	0.1	-140.21	-561.6	-467.7	730.8	730.5	0.27	2,714.915			
136.9	136.9	93.8	93.8	0.2	0.2	-140.21	-561.5	-467.7	730.8	730.3	0.47	1,553.782			
200.0	200.0	155.8	155.8	0.4	0.4	-140.20	-561.5	-467.8	730.8	730.0	0.81	904.394			
300.0	300.0	254.2	254.2	0.7	0.6	-140.18	-561.6	-468.2	731.2	729.8	1.33	548.119			
400.0	400.0	354.2	354.2	1.0	0.9	-140.16	-561.7	-468.6	731.5	729.7	1.86	393.931			
500.0	500.0	452.8	452.8	1.2	1.1	-140.13	-561.8	-469.2	732.0	729.6	2.38	307.223			
600.0	600.0	553.8	553.8	1.5	1.4	-140.07	-561.8	-470.2	732.6	729.7	2.92	251.161			
700.0	700.0	656.0	656.0	1.8	1.7	-34.00	-561.2	-471.1	731.7	728.2	3.44	212.732			
800.0	799.9	754.0	754.0	2.0	1.9	-34.10	-560.7	-472.2	728.7	724.8	3.94	184.950			
900.0	899.7	854.5	854.5	2.3	2.2	-34.35	-560.3	-473.3	723.7	719.3	4.45	162.459			
1,000.0	999.3	956.0	956.0	2.6	2.4	-34.73	-559.6	-474.4	716.3	711.3	4.98	143.706			
1,100.0	1,098.6	1,054.8	1,054.7	2.9	2.7	-35.29	-559.2	-475.0	706.7	701.2	5.52	128.140			
1,200.0	1,197.5	1,152.6	1,152.6	3.2	2.9	-36.02	-559.0	-475.6	695.2	689.1	6.06	114.629			
1,300.0	1,296.1	1,258.7	1,258.7	3.6	3.2	-36.99	-558.7	-476.2	681.7	675.0	6.66	102.381			
1,405.0	1,399.0	1,398.9	1,398.7	4.1	3.6	-38.66	-554.9	-472.9	661.6	654.2	7.39	89.510			
1,500.0	1,492.0	1,518.3	1,517.6	4.6	3.9	-40.35	-547.8	-464.6	637.8	629.7	8.07	79.018			
1,600.0	1,589.7	1,623.3	1,621.8	5.1	4.2	-42.18	-540.4	-454.0	610.5	601.7	8.76	69.667			
1,700.0	1,687.5	1,723.5	1,721.0	5.6	4.5	-44.29	-533.2	-441.4	582.4	572.9	9.47	61.507			
1,800.0	1,785.3	1,828.8	1,824.8	6.1	4.8	-46.97	-525.6	-425.7	553.9	543.7	10.24	54.076			
1,900.0	1,883.1	1,925.0	1,919.4	6.7	5.2	-49.79	-517.6	-409.9	524.9	513.9	11.04	47.537			
2,000.0	1,980.9	2,014.9	2,007.7	7.2	5.5	-52.70	-510.1	-395.0	497.2	485.3	11.86	41.929			
2,100.0	2,078.7	2,110.3	2,101.3	7.7	5.9	-56.15	-502.0	-378.8	470.6	457.8	12.76	36.873			
2,200.0	2,176.5	2,194.3	2,184.0	8.3	6.2	-59.43	-495.5	-365.4	446.7	433.1	13.66	32.711			
2,300.0	2,274.3	2,287.1	2,275.5	8.8	6.6	-63.34	-488.7	-351.0	425.5	410.9	14.64	29.061			
2,400.0	2,372.0	2,377.6	2,364.7	9.4	6.9	-67.39	-482.4	-337.7	407.0	391.3	15.65	25.996			
2,500.0	2,469.8	2,469.7	2,455.8	10.0	7.3	-71.71	-476.3	-325.0	391.4	374.7	16.70	23.436			
2,600.0	2,567.6	2,558.6	2,543.7	10.5	7.6	-76.14	-470.8	-312.9	378.8	361.1	17.74	21.353			
2,700.0	2,665.4	2,648.7	2,633.0	11.1	8.0	-80.73	-466.9	-301.3	371.0	352.2	18.79	19.742			
2,800.0	2,763.2	2,745.9	2,729.1	11.6	8.3	-86.02	-462.1	-287.6	365.7	345.9	19.87	18.407			
2,900.0	2,861.0	2,841.6	2,823.4	12.2	8.7	-91.60	-456.2	-272.4	363.3	342.4	20.89	17.389			
2,926.7	2,887.1	2,866.9	2,848.3	12.3	8.8	-93.13	-454.5	-268.2	363.1	342.0	21.15	17.168 CC, ES			
3,000.0	2,958.8	2,936.3	2,916.4	12.8	9.2	-97.40	-449.3	-256.1	364.1	342.2	21.86	16.651			
3,100.0	3,056.6	3,027.2	3,005.7	13.3	9.6	-102.91	-442.4	-240.3	368.8	346.1	22.71	16.237			
3,200.0	3,154.3	3,119.0	3,096.1	13.9	10.0	-108.09	-436.4	-225.6	377.7	354.3	23.47	16.095 SF			
3,300.0	3,252.1	3,219.6	3,195.3	14.5	10.4	-113.37	-429.4	-210.8	388.8	364.7	24.11	16.125			
3,400.0	3,349.9	3,308.7	3,283.3	15.0	10.7	-117.69	-423.8	-198.2	403.1	378.4	24.67	16.337			
3,500.0	3,447.7	3,407.3	3,380.8	15.6	11.1	-122.10	-417.5	-184.7	419.5	394.3	25.16	16.673			
3,600.0	3,545.5	3,501.4	3,473.9	16.1	11.5	-126.03	-410.9	-172.4	437.3	411.7	25.60	17.085			
3,700.0	3,643.3	3,586.5	3,557.9	16.7	11.8	-129.33	-405.3	-160.6	458.0	432.0	26.02	17.604			
3,800.0	3,741.1	3,666.6	3,636.8	17.3	12.2	-132.31	-400.2	-147.3	482.8	456.3	26.41	18.277			
3,900.0	3,838.9	3,753.6	3,722.0	17.9	12.6	-135.37	-395.0	-130.7	511.3	484.6	26.78	19.097			
4,000.0	3,936.6	3,850.2	3,816.8	18.4	13.1	-138.43	-388.9	-112.8	540.8	513.6	27.12	19.939			
4,100.0	4,034.4	3,948.9	3,913.7	19.0	13.5	-141.17	-383.0	-95.5	570.8	543.3	27.46	20.785			
4,200.0	4,132.2	4,039.1	4,002.5	19.6	13.9	-143.42	-377.4	-80.3	601.0	573.2	27.82	21.604			
4,300.0	4,230.0	4,137.5	4,099.2	20.1	14.4	-145.68	-371.0	-63.5	632.3	604.1	28.18	22.438			
4,400.0	4,327.8	4,240.2	4,200.5	20.7	14.8	-147.76	-364.5	-47.4	663.0	634.5	28.54	23.229			
4,500.0	4,425.6	4,356.7	4,315.9	21.3	15.2	-149.64	-359.2	-32.8	691.9	663.0	28.93	23.916			
4,600.0	4,523.4	4,479.4	4,438.0	21.8	15.6	-151.18	-355.8	-22.1	718.0	688.6	29.35	24.460			
4,700.0	4,621.2	4,600.3	4,558.8	22.4	15.9	-152.38	-354.0	-16.5	740.7	710.9	29.79	24.861			
4,800.0	4,718.9	4,712.5	4,671.0	23.0	16.2	-153.30	-353.2	-14.8	760.7	730.4	30.25	25.144			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Raymond 16N-29HZ (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft	
Survey Program: 17-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)			
4,900.0	4,816.7	4,813.2	4,771.7	23.5	16.4	-154.06	-352.6	-14.3	779.9	749.2	30.71	25.395		
5,000.0	4,914.5	4,912.7	4,871.1	24.1	16.6	-154.76	-352.1	-14.1	799.0	767.8	31.18	25.628		
5,088.2	5,000.7	5,000.0	4,958.4	24.6	16.8	-155.31	-352.2	-14.1	815.8	784.2	31.59	25.820		
5,100.0	5,012.3	5,011.7	4,970.2	24.7	16.8	-155.39	-352.3	-14.1	818.0	786.4	31.66	25.841		
5,200.0	5,110.5	5,112.2	5,070.7	25.1	17.0	-156.06	-352.6	-14.4	835.0	802.9	32.12	25.992		
5,300.0	5,209.3	5,213.4	5,171.8	25.4	17.2	-156.57	-352.9	-15.0	848.5	815.9	32.59	26.039		
5,400.0	5,308.6	5,316.8	5,275.2	25.7	17.4	-156.94	-353.4	-15.9	858.7	825.6	33.04	25.989		
5,500.0	5,408.3	5,417.9	5,376.3	25.9	17.5	-157.15	-354.1	-17.3	865.2	831.7	33.47	25.850		
5,600.0	5,508.1	5,518.1	5,476.6	26.1	17.7	-157.26	-354.6	-18.6	868.5	834.6	33.87	25.640		
5,691.9	5,600.0	5,609.6	5,568.1	26.3	17.9	96.67	-354.9	-19.9	868.6	834.6	34.04	25.520		
5,700.0	5,608.1	5,617.5	5,575.9	26.3	17.9	96.67	-354.9	-20.0	868.5	834.4	34.07	25.492		
5,800.0	5,708.1	5,715.9	5,674.3	26.4	18.1	96.69	-355.1	-21.1	867.4	832.9	34.49	25.152		
5,900.0	5,808.1	5,816.8	5,775.3	26.6	18.3	96.71	-355.2	-22.2	866.3	831.4	34.91	24.812		
6,000.0	5,908.1	5,919.8	5,878.2	26.7	18.5	96.72	-355.1	-23.6	865.0	829.6	35.35	24.468		
6,100.0	6,008.1	6,019.0	5,977.4	26.8	18.7	96.71	-354.8	-25.0	863.5	827.7	35.78	24.134		
6,200.0	6,108.1	6,119.0	6,077.4	27.0	18.9	96.68	-354.2	-26.4	862.1	825.9	36.21	23.808		
6,300.0	6,208.1	6,217.9	6,176.3	27.2	19.1	96.61	-353.2	-27.5	860.8	824.2	36.64	23.495		
6,400.0	6,308.1	6,321.2	6,279.5	27.3	19.3	96.51	-351.4	-28.9	859.3	822.2	37.08	23.175		
6,500.0	6,408.1	6,422.4	6,380.7	27.5	19.5	96.39	-349.5	-30.5	857.5	820.0	37.52	22.858		
6,557.3	6,465.4	6,479.4	6,437.7	27.6	19.6	96.32	-348.3	-31.4	856.5	818.7	37.76	22.680		
6,600.0	6,508.1	6,521.4	6,479.7	27.6	19.7	95.38	-347.2	-32.0	855.9	817.7	38.14	22.443		
6,650.0	6,557.9	6,574.7	6,532.9	27.7	19.8	95.66	-345.9	-32.8	855.3	817.0	38.39	22.282		
6,693.1	6,600.5	6,615.2	6,573.4	27.7	19.9	96.03	-345.2	-33.6	855.1	816.5	38.59	22.160		
6,700.0	6,607.3	6,621.2	6,579.4	27.7	19.9	96.10	-345.1	-33.7	855.1	816.5	38.62	22.142		
6,750.0	6,656.1	6,662.8	6,621.0	27.8	20.0	96.69	-345.5	-34.4	855.6	816.8	38.82	22.040		
6,800.0	6,704.1	6,701.0	6,659.1	27.8	20.1	97.47	-348.3	-34.9	857.3	818.3	39.00	21.978		
6,850.0	6,751.0	6,740.7	6,698.4	27.8	20.1	98.52	-354.2	-35.6	860.2	821.0	39.17	21.958		
6,900.0	6,796.7	6,743.0	6,700.6	27.8	20.1	98.21	-354.7	-35.7	865.3	826.2	39.06	22.151		
6,950.0	6,841.0	6,788.7	6,745.2	27.8	20.2	99.60	-364.6	-36.2	871.7	832.5	39.18	22.248		
7,000.0	6,883.7	6,809.0	6,764.9	27.8	20.2	99.85	-369.8	-36.1	881.1	842.0	39.12	22.525		
7,050.0	6,924.7	6,827.0	6,782.1	27.8	20.2	99.85	-374.7	-35.8	893.0	854.0	39.02	22.886		
7,100.0	6,963.6	6,842.6	6,797.1	27.8	20.2	99.58	-379.2	-35.4	907.5	868.5	38.91	23.321		
7,150.0	7,000.4	6,856.0	6,809.8	27.8	20.2	98.99	-383.3	-35.0	924.5	885.7	38.82	23.817		
7,200.0	7,034.9	6,867.2	6,820.4	27.8	20.3	98.07	-386.9	-34.5	944.1	905.3	38.76	24.359		
7,250.0	7,067.0	6,876.2	6,828.9	27.8	20.3	96.81	-389.9	-34.1	966.0	927.3	38.75	24.931		
7,300.0	7,096.5	6,883.3	6,835.6	27.8	20.3	95.20	-392.2	-33.8	990.2	951.4	38.80	25.519		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Raymond 37N-29HZ (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 17-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-138.59	-561.9	-495.6	750.5					
100.0	100.0	58.1	58.1	0.1	0.1	-138.59	-561.9	-495.6	749.2	748.9	0.27	2,742.878		
200.0	200.0	160.0	160.0	0.4	0.4	-138.58	-561.4	-495.3	748.7	747.8	0.82	917.848		
300.0	300.0	258.9	258.9	0.7	0.6	-138.57	-561.0	-495.1	748.3	746.9	1.34	560.056		
400.0	400.0	359.0	359.0	1.0	0.9	-138.58	-560.8	-494.7	747.8	746.0	1.86	401.598		
500.0	500.0	458.9	458.9	1.2	1.2	-138.57	-560.5	-494.6	747.5	745.1	2.39	312.449		
600.0	600.0	559.2	559.2	1.5	1.4	-138.58	-560.1	-494.3	747.0	744.1	2.92	255.483		
700.0	700.0	658.1	658.1	1.8	1.7	-32.58	-559.9	-494.1	745.6	742.2	3.43	217.191		
800.0	799.9	758.3	758.3	2.0	1.9	-32.81	-559.9	-493.6	742.0	738.1	3.94	188.506		
900.0	899.7	857.0	857.0	2.3	2.2	-33.11	-559.6	-493.5	736.2	731.7	4.45	165.484		
1,000.0	999.3	952.6	952.6	2.6	2.4	-33.52	-559.3	-493.9	728.6	723.7	4.96	146.781		
1,100.0	1,098.6	1,090.8	1,090.8	2.9	2.8	-34.26	-557.0	-493.3	717.6	712.0	5.61	127.801		
1,200.0	1,197.5	1,217.3	1,216.8	3.2	3.1	-34.89	-547.4	-491.2	699.0	692.7	6.26	111.677		
1,300.0	1,296.1	1,330.3	1,328.9	3.6	3.5	-35.18	-532.3	-491.8	675.2	668.3	6.89	97.963		
1,405.0	1,399.0	1,451.2	1,447.9	4.1	3.9	-35.41	-511.2	-492.9	645.1	637.5	7.61	84.717		
1,500.0	1,492.0	1,558.3	1,552.7	4.6	4.3	-35.35	-489.6	-492.5	614.1	605.8	8.28	74.180		
1,600.0	1,589.7	1,645.9	1,638.3	5.1	4.7	-35.24	-470.7	-491.9	580.3	571.4	8.92	65.035		
1,700.0	1,687.5	1,737.1	1,727.6	5.6	5.0	-35.11	-452.2	-492.3	548.0	538.5	9.58	57.228		
1,800.0	1,785.3	1,834.3	1,822.8	6.1	5.5	-35.03	-432.7	-492.1	515.6	505.3	10.27	50.226		
1,900.0	1,883.1	1,918.9	1,905.8	6.7	5.8	-35.06	-416.6	-491.6	483.8	472.9	10.91	44.325		
2,000.0	1,980.9	2,012.0	1,997.6	7.2	6.2	-35.24	-400.6	-491.0	453.2	441.6	11.59	39.104		
2,100.0	2,078.7	2,100.1	2,084.5	7.7	6.5	-35.58	-386.8	-490.2	423.7	411.4	12.26	34.567		
2,200.0	2,176.5	2,191.4	2,174.9	8.3	6.9	-35.95	-373.3	-490.4	395.4	382.5	12.94	30.561		
2,300.0	2,274.3	2,279.2	2,261.9	8.8	7.2	-36.45	-361.9	-491.0	368.9	355.3	13.62	27.093		
2,400.0	2,372.0	2,366.4	2,348.6	9.4	7.5	-37.28	-353.2	-491.8	344.8	330.5	14.29	24.137		
2,500.0	2,469.8	2,454.4	2,436.5	10.0	7.7	-38.57	-347.5	-492.6	323.6	308.6	14.98	21.608		
2,600.0	2,567.6	2,544.2	2,526.3	10.5	8.0	-40.33	-344.7	-493.5	305.3	289.6	15.68	19.472		
2,700.0	2,665.4	2,639.7	2,621.7	11.1	8.2	-42.76	-344.1	-494.1	289.3	272.9	16.43	17.605		
2,800.0	2,763.2	2,739.9	2,721.9	11.6	8.4	-45.58	-343.0	-494.6	273.4	256.2	17.25	15.852		
2,900.0	2,861.0	2,835.9	2,817.9	12.2	8.6	-48.58	-341.9	-495.0	258.2	240.1	18.09	14.272		
3,000.0	2,958.8	2,931.9	2,913.9	12.8	8.8	-52.09	-341.8	-495.3	244.7	225.8	18.99	12.890		
3,100.0	3,056.6	3,029.5	3,011.5	13.3	9.0	-56.02	-342.1	-495.7	232.7	212.8	19.94	11.671		
3,200.0	3,154.3	3,126.1	3,108.1	13.9	9.2	-60.46	-342.9	-495.5	222.2	201.3	20.94	10.614		
3,300.0	3,252.1	3,223.1	3,205.1	14.5	9.4	-65.60	-344.4	-494.4	213.8	191.8	21.99	9.723		
3,400.0	3,349.9	3,320.0	3,302.0	15.0	9.6	-71.10	-346.0	-493.2	207.6	184.5	23.07	8.999		
3,500.0	3,447.7	3,416.8	3,398.8	15.6	9.8	-76.48	-348.3	-493.4	203.9	179.8	24.11	8.457		
3,600.0	3,545.5	3,515.6	3,497.5	16.1	10.0	-81.82	-350.6	-494.6	202.2	177.1	25.13	8.049		
3,669.2	3,613.2	3,584.2	3,566.1	16.5	10.2	-85.73	-351.9	-494.8	201.9	176.1	25.80	7.824 CC		
3,700.0	3,643.3	3,614.5	3,596.4	16.7	10.2	-87.52	-352.3	-494.8	201.9	175.9	26.09	7.741 ES		
3,800.0	3,741.1	3,713.2	3,695.1	17.3	10.5	-93.45	-353.4	-494.1	203.4	176.4	26.97	7.539		
3,900.0	3,838.9	3,811.8	3,793.7	17.9	10.7	-99.31	-353.9	-493.4	206.5	178.8	27.76	7.440		
4,000.0	3,936.6	3,910.3	3,892.1	18.4	10.9	-104.98	-354.0	-492.8	211.4	183.0	28.44	7.435 SF		
4,100.0	4,034.4	4,008.2	3,990.1	19.0	11.1	-110.18	-354.2	-492.7	218.1	189.0	29.02	7.515		
4,200.0	4,132.2	4,105.7	4,087.6	19.6	11.4	-115.01	-354.5	-492.7	226.5	197.0	29.52	7.673		
4,300.0	4,230.0	4,203.4	4,185.3	20.1	11.6	-119.50	-354.8	-492.6	236.6	206.6	29.95	7.900		
4,400.0	4,327.8	4,300.1	4,281.9	20.7	11.8	-123.52	-355.3	-492.5	248.1	217.8	30.33	8.180		
4,500.0	4,425.6	4,398.9	4,380.7	21.3	12.0	-127.25	-356.0	-492.3	261.1	230.4	30.69	8.507		
4,600.0	4,523.4	4,496.0	4,477.9	21.8	12.3	-130.51	-356.9	-492.4	274.8	243.8	31.03	8.856		
4,700.0	4,621.2	4,591.8	4,573.7	22.4	12.5	-133.36	-358.1	-492.3	289.7	258.3	31.38	9.232		
4,800.0	4,718.9	4,685.2	4,667.1	23.0	12.7	-135.86	-360.1	-491.0	306.7	275.0	31.73	9.667		
4,900.0	4,816.7	4,784.4	4,766.2	23.5	12.9	-138.24	-362.2	-489.6	324.5	292.4	32.07	10.116		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Raymond 37N-29HZ (Exist) - Wellbore #1 - Wellbore #1														Offset Site Error: 0.0 ft	
Survey Program: 17-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	4,914.5	4,883.0	4,864.8	24.1	13.2	-140.37	-364.0	-488.4	342.3	309.8	32.43	10.553			
5,088.2	5,000.7	4,969.3	4,951.1	24.6	13.4	-142.18	-365.0	-487.3	358.2	325.5	32.74	10.940			
5,100.0	5,012.3	4,980.9	4,962.6	24.7	13.4	-142.44	-365.0	-487.1	360.3	327.6	32.78	10.993			
5,200.0	5,110.5	5,079.5	5,061.3	25.1	13.6	-144.39	-365.5	-485.8	377.0	344.0	33.06	11.404			
5,300.0	5,209.3	5,181.0	5,162.8	25.4	13.9	-145.88	-365.9	-484.8	390.7	357.3	33.38	11.705			
5,400.0	5,308.6	5,281.3	5,263.1	25.7	14.1	-146.91	-366.4	-484.4	401.1	367.4	33.72	11.897			
5,500.0	5,408.3	5,383.6	5,365.3	25.9	14.4	-147.57	-367.0	-484.4	408.4	374.3	34.07	11.986			
5,600.0	5,508.1	5,486.1	5,467.8	26.1	14.6	-147.95	-367.1	-485.1	411.9	377.5	34.43	11.965			
5,691.9	5,600.0	5,575.9	5,557.6	26.3	14.8	105.90	-367.0	-485.8	412.5	377.9	34.59	11.924			
5,700.0	5,608.1	5,583.7	5,565.5	26.3	14.8	105.90	-367.0	-485.9	412.4	377.8	34.62	11.912			
5,739.1	5,647.3	5,621.5	5,603.3	26.3	14.9	105.88	-366.8	-485.9	412.4	377.6	34.78	11.855			
5,800.0	5,708.1	5,680.4	5,662.2	26.4	15.1	105.77	-366.1	-485.5	412.5	377.5	35.02	11.779			
5,900.0	5,808.1	5,783.6	5,765.3	26.6	15.4	105.56	-364.7	-485.0	412.6	377.2	35.44	11.644			
6,000.0	5,908.1	5,883.9	5,865.6	26.7	15.6	105.41	-363.5	-485.3	412.1	376.2	35.85	11.493			
6,031.7	5,939.8	5,914.1	5,895.8	26.7	15.7	105.34	-363.0	-485.2	412.0	376.0	35.98	11.452			
6,100.0	6,008.1	5,982.1	5,963.8	26.8	15.9	105.16	-361.8	-484.8	412.1	375.9	36.25	11.368			
6,200.0	6,108.1	6,082.9	6,064.6	27.0	16.1	104.94	-360.3	-484.4	412.1	375.4	36.67	11.238			
6,300.0	6,208.1	6,184.5	6,166.2	27.2	16.4	104.79	-359.1	-484.4	411.8	374.7	37.10	11.100			
6,400.0	6,308.1	6,287.5	6,269.1	27.3	16.6	104.73	-358.4	-485.2	410.9	373.3	37.54	10.944			
6,500.0	6,408.1	6,387.5	6,369.1	27.5	16.9	104.72	-358.1	-486.4	409.6	371.6	37.99	10.784			
6,557.3	6,465.4	6,444.8	6,426.4	27.6	17.0	104.71	-357.9	-487.0	408.9	370.7	38.24	10.694			
6,596.2	6,504.3	6,483.6	6,465.3	27.6	17.1	103.87	-357.7	-487.5	408.7	370.1	38.59	10.589			
6,600.0	6,508.1	6,487.4	6,469.1	27.6	17.1	103.90	-357.7	-487.5	408.7	370.1	38.62	10.584			
6,650.0	6,557.9	6,536.1	6,517.7	27.7	17.3	104.45	-357.6	-488.1	409.2	370.3	38.89	10.522			
6,700.0	6,607.3	6,577.9	6,559.5	27.7	17.4	105.20	-357.8	-488.3	411.1	371.9	39.13	10.506			
6,750.0	6,656.1	6,611.0	6,592.6	27.8	17.4	106.02	-359.3	-487.8	415.5	376.2	39.29	10.574			
6,800.0	6,704.1	6,643.9	6,625.3	27.8	17.5	107.12	-363.0	-486.9	422.9	383.5	39.43	10.727			
6,850.0	6,751.0	6,677.5	6,658.3	27.8	17.6	108.51	-369.1	-485.8	433.6	394.1	39.53	10.970			
6,900.0	6,796.7	6,708.4	6,688.3	27.8	17.6	109.84	-376.4	-485.0	447.6	408.0	39.54	11.320			
6,950.0	6,841.0	6,739.0	6,717.6	27.8	17.6	111.16	-385.2	-484.2	465.3	425.8	39.47	11.788			
7,000.0	6,883.7	6,757.3	6,734.8	27.8	17.6	111.23	-391.1	-483.7	486.7	447.5	39.22	12.408			
7,050.0	6,924.7	6,782.0	6,758.0	27.8	17.7	111.68	-399.8	-483.0	511.9	472.9	38.99	13.130			
7,100.0	6,963.6	6,795.0	6,770.0	27.8	17.7	110.62	-404.6	-482.6	540.6	501.9	38.68	13.974			
7,150.0	7,000.4	6,810.1	6,784.0	27.8	17.7	109.40	-410.4	-482.2	572.4	533.9	38.44	14.890			
7,200.0	7,034.9	6,825.0	6,797.7	27.8	17.7	107.76	-416.4	-481.7	607.0	568.7	38.27	15.859			
7,250.0	7,067.0	6,831.8	6,803.8	27.8	17.7	104.64	-419.1	-481.5	644.0	605.8	38.23	16.846			
7,300.0	7,096.5	6,838.7	6,810.2	27.8	17.7	100.98	-422.0	-481.3	683.0	644.7	38.30	17.832			
7,350.0	7,123.3	6,843.2	6,814.2	27.8	17.7	96.40	-423.8	-481.2	723.7	685.2	38.45	18.820			
7,400.0	7,147.3	6,845.3	6,816.1	27.9	17.7	90.94	-424.7	-481.1	765.6	727.0	38.55	19.858			
7,450.0	7,168.4	6,845.3	6,816.1	27.9	17.7	84.69	-424.7	-481.1	808.5	770.0	38.43	21.036			
7,500.0	7,186.4	6,843.3	6,814.4	28.0	17.7	77.89	-423.9	-481.1	852.0	814.1	37.89	22.485			
7,550.0	7,201.4	6,839.6	6,811.0	28.2	17.7	70.82	-422.4	-481.3	895.8	859.0	36.79	24.352			
7,600.0	7,213.2	6,834.3	6,806.1	28.4	17.7	63.82	-420.1	-481.4	939.7	904.6	35.10	26.776			
7,650.0	7,221.8	6,825.0	6,797.7	28.6	17.7	56.94	-416.4	-481.7	983.5	950.7	32.83	29.954			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Raymond 38C-29HC (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft	
Survey Program: 17-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)			
0.0	0.0	0.0	0.0	0.0	0.0	-142.08	-560.8	-436.9	712.2					
100.0	100.0	57.4	57.4	0.1	0.1	-142.08	-560.9	-436.9	711.0	710.7	0.27	2,615.105		
200.0	200.0	155.7	155.7	0.4	0.4	-142.11	-561.2	-436.8	711.2	710.4	0.81	879.970		
300.0	300.0	254.0	253.9	0.7	0.6	-142.12	-561.7	-437.0	711.6	710.3	1.33	533.879		
400.0	400.0	353.3	353.3	1.0	0.9	-142.13	-562.3	-437.2	712.3	710.4	1.86	382.299		
500.0	500.0	453.1	453.1	1.2	1.2	-142.14	-562.9	-437.5	712.9	710.5	2.39	297.871		
600.0	600.0	552.3	552.3	1.5	1.4	-142.15	-563.4	-437.9	713.6	710.7	2.92	244.149		
700.0	700.0	651.3	651.3	1.8	1.7	-36.17	-564.3	-438.3	713.5	710.1	3.43	207.861		
800.0	799.9	751.0	751.0	2.0	1.9	-36.38	-565.0	-438.8	711.2	707.3	3.93	180.761		
900.0	899.7	850.2	850.2	2.3	2.2	-36.71	-565.8	-439.7	707.1	702.6	4.45	158.950		
1,000.0	999.3	952.3	952.3	2.6	2.4	-37.23	-566.5	-440.2	700.6	695.7	4.98	140.760		
1,100.0	1,098.6	1,053.6	1,053.6	2.9	2.7	-37.92	-567.0	-440.5	691.9	686.4	5.52	125.414		
1,200.0	1,197.5	1,177.0	1,177.0	3.2	3.0	-39.10	-566.5	-438.2	679.2	673.0	6.14	110.618		
1,300.0	1,296.1	1,292.6	1,292.3	3.6	3.3	-40.77	-564.9	-431.3	661.6	654.8	6.78	97.606		
1,405.0	1,399.0	1,408.5	1,407.7	4.1	3.6	-43.02	-562.2	-420.9	639.0	631.5	7.48	85.401		
1,500.0	1,492.0	1,511.2	1,509.7	4.6	3.9	-45.22	-559.0	-408.8	616.2	608.1	8.16	75.553		
1,600.0	1,589.7	1,614.9	1,612.3	5.1	4.2	-47.73	-554.3	-394.8	591.1	582.2	8.91	66.356		
1,700.0	1,687.5	1,709.7	1,706.1	5.6	4.6	-50.26	-549.7	-381.4	566.6	556.9	9.67	58.605		
1,800.0	1,785.3	1,806.1	1,801.2	6.1	4.9	-53.16	-545.0	-366.6	542.7	532.2	10.49	51.715		
1,900.0	1,883.1	1,899.1	1,892.7	6.7	5.3	-56.39	-540.9	-350.5	520.1	508.8	11.36	45.776		
2,000.0	1,980.9	1,994.0	1,985.9	7.2	5.6	-59.99	-536.7	-333.7	499.3	487.0	12.29	40.612		
2,100.0	2,078.7	2,091.3	2,081.4	7.7	6.0	-64.10	-532.0	-315.2	479.9	466.5	13.32	36.029		
2,200.0	2,176.5	2,179.2	2,167.5	8.3	6.4	-68.14	-527.5	-297.8	462.8	448.5	14.34	32.275		
2,300.0	2,274.3	2,269.4	2,255.6	8.8	6.8	-72.57	-523.6	-279.6	449.4	434.0	15.41	29.158		
2,400.0	2,372.0	2,363.0	2,347.2	9.4	7.3	-77.42	-519.3	-260.3	439.2	422.7	16.53	26.573		
2,500.0	2,469.8	2,456.5	2,438.5	10.0	7.7	-82.44	-514.6	-241.0	432.2	414.6	17.62	24.523		
2,600.0	2,567.6	2,548.2	2,528.3	10.5	8.2	-87.36	-509.6	-223.0	428.5	409.9	18.65	22.974		
2,632.4	2,599.3	2,575.9	2,555.5	10.7	8.3	-88.84	-508.2	-217.6	428.3	409.3	18.96	22.584	CC, ES	
2,700.0	2,665.4	2,635.9	2,614.3	11.1	8.5	-92.03	-505.6	-206.1	429.4	409.7	19.61	21.894		
2,800.0	2,763.2	2,728.7	2,705.2	11.6	9.0	-96.90	-501.6	-188.3	434.0	413.5	20.54	21.133		
2,900.0	2,861.0	2,821.7	2,796.5	12.2	9.4	-101.65	-497.5	-170.6	441.9	420.5	21.38	20.665		
3,000.0	2,958.8	2,911.8	2,884.8	12.8	9.8	-106.11	-493.2	-153.4	453.1	431.0	22.16	20.449	SF	
3,100.0	3,056.6	3,002.6	2,973.7	13.3	10.3	-110.44	-489.2	-135.5	468.0	445.1	22.86	20.471		
3,200.0	3,154.3	3,099.0	3,068.3	13.9	10.7	-114.66	-485.1	-117.3	485.3	461.8	23.48	20.668		
3,300.0	3,252.1	3,191.4	3,159.3	14.5	11.1	-118.31	-481.6	-101.3	504.3	480.3	24.04	20.975		
3,400.0	3,349.9	3,288.7	3,254.9	15.0	11.6	-121.90	-477.6	-84.4	525.2	500.7	24.57	21.381		
3,500.0	3,447.7	3,387.3	3,352.1	15.6	12.0	-125.30	-472.6	-68.0	546.9	521.9	25.04	21.838		
3,600.0	3,545.5	3,482.1	3,445.5	16.1	12.4	-128.29	-467.7	-53.0	569.6	544.1	25.49	22.344		
3,700.0	3,643.3	3,572.3	3,534.5	16.7	12.8	-130.92	-463.1	-38.7	593.8	567.9	25.93	22.904		
3,800.0	3,741.1	3,661.6	3,622.6	17.3	13.2	-133.26	-459.5	-24.5	619.7	593.3	26.35	23.513		
3,900.0	3,838.9	3,751.3	3,711.1	17.9	13.6	-135.33	-457.3	-10.3	647.2	620.5	26.78	24.171		
4,000.0	3,936.6	3,842.0	3,800.7	18.4	14.0	-137.16	-456.3	3.7	675.8	648.6	27.21	24.836		
4,100.0	4,034.4	3,923.4	3,881.0	19.0	14.3	-138.72	-455.2	17.2	706.0	678.3	27.65	25.536		
4,200.0	4,132.2	4,003.4	3,959.5	19.6	14.7	-140.27	-453.4	32.6	738.6	710.6	28.08	26.304		
4,300.0	4,230.0	4,091.5	4,045.7	20.1	15.2	-141.93	-450.6	50.6	772.7	744.2	28.51	27.102		
4,400.0	4,327.8	4,179.5	4,131.7	20.7	15.6	-143.53	-447.1	69.2	807.9	778.9	28.94	27.916		
4,500.0	4,425.6	4,268.5	4,218.4	21.3	16.1	-145.04	-443.3	88.3	843.9	814.5	29.37	28.729		
4,600.0	4,523.4	4,363.5	4,311.1	21.8	16.6	-146.56	-438.8	108.9	880.4	850.6	29.81	29.536		
4,700.0	4,621.2	4,461.3	4,406.5	22.4	17.2	-148.05	-433.3	129.5	916.6	886.4	30.24	30.314		
4,800.0	4,718.9	4,556.9	4,499.9	23.0	17.6	-149.40	-427.6	149.1	952.8	922.1	30.67	31.064		
4,900.0	4,816.7	4,648.5	4,589.4	23.5	18.1	-150.60	-422.1	167.7	989.1	958.0	31.11	31.791		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Existing Wells Sec.20-T3N-R66W - Raymond 38C-29HC (Exist) - Wellbore #1 - Wellbore #1					Offset Site Error:		0.0 ft	
Survey Program:		17-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)										



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Raymond 38N-29HZX (Exist) - Wellbore #1 - Wellbore #1														Offset Site Error: 0.0 ft	
Survey Program: 17-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)				
0.0	0.0	0.0	0.0	0.0	0.0	-144.12	-561.6	-406.2	694.2						
100.0	100.0	61.4	61.4	0.1	0.1	-144.11	-561.5	-406.3	693.0	692.8	0.28	2,452.303			
200.0	200.0	161.8	161.8	0.4	0.4	-144.03	-560.6	-406.9	692.7	691.9	0.83	836.365			
300.0	300.0	261.7	261.7	0.7	0.7	-143.90	-559.6	-408.0	692.6	691.2	1.36	508.251			
400.0	400.0	363.9	363.9	1.0	0.9	-143.77	-558.3	-409.0	692.1	690.2	1.90	364.000			
500.0	500.0	463.6	463.6	1.2	1.2	-143.61	-556.7	-410.3	691.5	689.1	2.44	283.311			
600.0	600.0	564.2	564.2	1.5	1.5	-143.43	-555.0	-411.7	691.0	688.1	2.98	232.119			
700.0	700.0	666.5	666.4	1.8	1.7	-37.30	-553.3	-412.7	689.2	685.7	3.50	196.907			
800.0	799.9	767.6	767.5	2.0	2.0	-37.39	-551.3	-413.5	685.1	681.1	4.01	170.883			
900.0	899.7	867.1	867.0	2.3	2.3	-37.64	-549.4	-414.3	678.8	674.2	4.53	149.970			
1,000.0	999.3	965.9	965.8	2.6	2.5	-38.03	-547.5	-415.2	670.5	665.4	5.05	132.781			
1,100.0	1,098.6	1,077.6	1,077.4	2.9	2.8	-38.72	-545.4	-415.3	659.9	654.3	5.62	117.442			
1,200.0	1,197.5	1,195.1	1,194.8	3.2	3.1	-40.08	-542.8	-410.0	644.3	638.1	6.22	103.503			
1,300.0	1,296.1	1,307.6	1,306.8	3.6	3.4	-41.96	-539.5	-400.8	624.5	617.7	6.85	91.147			
1,405.0	1,399.0	1,419.8	1,418.2	4.1	3.7	-44.50	-535.5	-388.0	599.9	592.3	7.55	79.498			
1,500.0	1,492.0	1,526.1	1,523.2	4.6	4.1	-47.27	-530.8	-372.0	575.2	567.0	8.25	69.684			
1,600.0	1,589.7	1,626.3	1,621.7	5.1	4.4	-50.35	-525.6	-354.1	548.5	539.4	9.04	60.685			
1,700.0	1,687.5	1,717.6	1,711.1	5.6	4.8	-53.54	-520.6	-336.7	522.6	512.7	9.85	53.034			
1,800.0	1,785.3	1,808.6	1,800.1	6.1	5.2	-57.15	-516.6	-318.1	499.0	488.3	10.74	46.448			
1,900.0	1,883.1	1,905.7	1,894.8	6.7	5.6	-61.46	-512.1	-297.0	477.3	465.6	11.75	40.626			
2,000.0	1,980.9	1,992.2	1,979.2	7.2	6.0	-65.56	-507.4	-278.5	457.9	445.1	12.74	35.946			
2,100.0	2,078.7	2,076.2	2,061.1	7.7	6.4	-69.81	-504.2	-260.5	443.0	429.2	13.76	32.196			
2,200.0	2,176.5	2,162.4	2,145.3	8.3	6.8	-74.41	-502.1	-241.8	432.8	418.0	14.83	29.195			
2,300.0	2,274.3	2,259.4	2,240.1	8.8	7.3	-79.71	-499.8	-221.2	426.5	410.6	15.96	26.724			
2,400.0	2,372.0	2,349.3	2,327.7	9.4	7.7	-84.75	-496.8	-201.8	423.4	406.3	17.06	24.823			
2,422.2	2,393.7	2,369.5	2,347.4	9.5	7.8	-85.90	-496.2	-197.4	423.3	406.0	17.29	24.476 CC, ES			
2,500.0	2,469.8	2,440.8	2,417.0	10.0	8.2	-89.90	-493.9	-182.1	424.5	406.4	18.11	23.445			
2,600.0	2,567.6	2,530.2	2,504.3	10.5	8.6	-94.87	-491.2	-162.8	429.7	410.6	19.09	22.513			
2,700.0	2,665.4	2,620.7	2,592.0	11.1	9.1	-100.08	-487.4	-140.9	439.1	419.1	20.05	21.905			
2,800.0	2,763.2	2,711.7	2,679.7	11.6	9.7	-105.33	-482.4	-117.3	452.5	431.5	20.93	21.622 SF			
2,900.0	2,861.0	2,796.1	2,761.1	12.2	10.2	-109.97	-477.8	-95.2	470.2	448.5	21.69	21.676			
3,000.0	2,958.8	2,878.6	2,840.5	12.8	10.7	-114.16	-474.5	-73.2	492.9	470.5	22.37	22.028			
3,100.0	3,056.6	2,972.9	2,931.5	13.3	11.2	-118.45	-471.5	-48.8	518.7	495.7	22.97	22.578			
3,200.0	3,154.3	3,073.0	3,028.7	13.9	11.8	-122.43	-468.5	-25.1	545.6	522.1	23.49	23.221			
3,300.0	3,252.1	3,171.4	3,124.8	14.5	12.3	-125.85	-465.5	-4.0	572.8	548.8	23.98	23.886			
3,400.0	3,349.9	3,267.2	3,218.5	15.0	12.7	-128.87	-462.2	15.8	600.8	576.4	24.43	24.590			
3,500.0	3,447.7	3,363.4	3,312.7	15.6	13.2	-131.64	-458.4	35.1	629.6	604.7	24.87	25.317			
3,600.0	3,545.5	3,459.8	3,407.2	16.1	13.7	-134.13	-454.9	53.5	658.9	633.6	25.29	26.051			
3,700.0	3,643.3	3,554.1	3,499.9	16.7	14.1	-136.29	-451.9	70.7	688.6	662.9	25.72	26.778			
3,800.0	3,741.1	3,640.9	3,585.1	17.3	14.6	-138.19	-448.5	87.0	719.5	693.3	26.14	27.518			
3,900.0	3,838.9	3,722.2	3,664.5	17.9	15.0	-139.95	-444.4	103.6	752.1	725.6	26.57	28.305			
4,000.0	3,936.6	3,816.3	3,756.5	18.4	15.5	-141.82	-439.9	123.2	786.0	759.0	27.00	29.115			
4,100.0	4,034.4	3,905.5	3,843.7	19.0	16.0	-143.44	-435.7	141.5	820.3	792.9	27.42	29.912			
4,200.0	4,132.2	3,981.9	3,918.1	19.6	16.4	-144.80	-431.6	158.4	856.4	828.6	27.85	30.746			
4,300.0	4,230.0	4,080.2	4,013.8	20.1	16.9	-146.41	-426.3	180.0	893.0	864.7	28.29	31.568			
4,400.0	4,327.8	4,157.3	4,088.9	20.7	17.4	-147.56	-422.6	197.3	930.6	901.9	28.73	32.394			
4,500.0	4,425.6	4,229.0	4,158.4	21.3	17.8	-148.57	-419.3	214.6	970.2	941.1	29.17	33.257			



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Soco 20-1K (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	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)			
10,900.0	7,194.9	7,193.4	7,190.6	89.4	17.6	92.12	4,265.1	-61.0	994.1	887.8	106.31	9.351		
11,000.0	7,193.8	7,192.2	7,189.4	91.7	17.6	92.03	4,265.1	-61.0	940.0	831.4	108.61	8.655		
11,100.0	7,192.7	7,191.0	7,188.2	94.0	17.6	91.95	4,265.1	-60.9	893.9	783.0	110.91	8.060		
11,200.0	7,191.6	7,189.8	7,187.0	96.2	17.6	91.86	4,265.1	-60.9	857.0	743.8	113.21	7.570		
11,300.0	7,190.5	7,188.6	7,185.8	98.5	17.6	91.78	4,265.1	-60.9	830.6	715.1	115.51	7.190		
11,400.0	7,189.4	7,187.4	7,184.6	100.8	17.6	91.69	4,265.1	-60.8	815.6	697.8	117.82	6.923		
11,473.0	7,188.6	7,186.5	7,183.7	102.5	17.6	91.63	4,265.1	-60.8	812.3	692.8	119.51	6.797 CC		
11,500.0	7,188.3	7,186.2	7,183.4	103.1	17.6	91.61	4,265.1	-60.8	812.8	692.7	120.13	6.766 ES		
11,600.0	7,187.2	7,185.0	7,182.2	105.5	17.6	91.53	4,265.1	-60.8	822.2	699.8	122.44	6.715 SF		
11,708.1	7,186.0	7,183.8	7,180.9	107.9	17.6	91.44	4,265.1	-60.7	845.7	720.7	124.95	6.768		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Soco 20-2K (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)			
10,582.1	7,198.4	7,159.4	7,156.3	82.2	20.4	-92.75	4,194.0	-1,259.8	963.0	861.5	101.45	9.493		
10,600.0	7,198.2	7,159.0	7,155.9	82.6	20.4	-92.68	4,194.0	-1,259.8	946.6	844.8	101.84	9.295		
10,700.0	7,197.1	7,156.6	7,153.5	84.8	20.4	-92.33	4,194.0	-1,259.7	856.4	752.3	104.17	8.222		
10,800.0	7,196.0	7,154.1	7,151.0	87.1	20.4	-91.96	4,194.1	-1,259.7	768.7	662.2	106.50	7.218		
10,900.0	7,194.9	7,151.6	7,148.5	89.4	20.4	-91.59	4,194.1	-1,259.7	684.3	575.5	108.84	6.288		
11,000.0	7,193.8	7,149.0	7,145.9	91.7	20.4	-91.21	4,194.1	-1,259.7	604.7	493.6	111.18	5.440		
11,100.0	7,192.7	7,146.4	7,143.3	94.0	20.4	-90.82	4,194.2	-1,259.6	532.1	418.6	113.51	4.687		
11,200.0	7,191.6	7,143.7	7,140.6	96.2	20.3	-90.43	4,194.2	-1,259.6	469.5	353.7	115.85	4.053		
11,300.0	7,190.5	7,140.9	7,137.8	98.5	20.3	-90.02	4,194.3	-1,259.6	421.7	303.5	118.18	3.568		
11,400.0	7,189.4	7,138.1	7,135.0	100.8	20.3	-89.60	4,194.3	-1,259.6	393.9	273.4	120.52	3.268		
11,463.4	7,188.7	7,136.3	7,133.2	102.3	20.3	-89.34	4,194.4	-1,259.5	388.8	266.8	121.99	3.187 CC, ES		
11,500.0	7,188.3	7,135.2	7,132.1	103.1	20.3	-89.18	4,194.4	-1,259.5	390.5	267.6	122.85	3.179 SF		
11,600.0	7,187.2	7,132.3	7,129.2	105.5	20.3	-88.74	4,194.4	-1,259.5	412.1	286.9	125.17	3.292		
11,708.1	7,186.0	7,129.0	7,125.9	107.9	20.3	-88.26	4,194.5	-1,259.5	459.3	331.7	127.68	3.598		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Soco 20-7K (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,400.0	7,211.4	7,171.1	7,169.1	57.1	17.1	-94.20	3,138.8	-926.1	990.4	918.9	71.50	13.851		
9,500.0	7,210.3	7,170.3	7,168.2	59.2	17.1	-93.73	3,138.8	-926.1	891.0	817.2	73.74	12.083		
9,600.0	7,209.2	7,169.5	7,167.4	61.3	17.1	-93.27	3,138.8	-926.1	791.7	715.7	75.98	10.420		
9,700.0	7,208.1	7,168.6	7,166.5	63.4	17.1	-92.80	3,138.8	-926.1	692.7	614.5	78.24	8.854		
9,800.0	7,207.0	7,167.8	7,165.7	65.6	17.1	-92.33	3,138.8	-926.1	594.0	513.5	80.50	7.379		
9,900.0	7,205.9	7,167.0	7,164.9	67.7	17.1	-91.87	3,138.8	-926.1	495.8	413.0	82.77	5.990		
10,000.0	7,204.8	7,166.1	7,164.0	69.9	17.1	-91.40	3,138.8	-926.1	398.5	313.5	85.04	4.686		
10,100.0	7,203.7	7,165.3	7,163.2	72.1	17.1	-90.93	3,138.8	-926.1	303.0	215.7	87.31	3.470		
10,200.0	7,202.6	7,164.4	7,162.3	74.3	17.1	-90.46	3,138.8	-926.1	211.6	122.0	89.58	2.362		
10,300.0	7,201.5	7,163.6	7,161.5	76.4	17.1	-89.99	3,138.8	-926.1	133.3	41.5	91.86	1.451 Level 3		
10,385.1	7,200.5	7,162.9	7,160.8	78.3	17.1	-89.60	3,138.8	-926.1	102.6	8.8	93.80	1.094 Level 2, CC		
10,386.9	7,200.5	7,162.9	7,160.8	78.4	17.1	-89.59	3,138.8	-926.1	102.7	8.8	93.84	1.094 Level 2, ES, SF		
10,400.0	7,200.4	7,162.8	7,160.7	78.6	17.1	-89.53	3,138.8	-926.1	103.7	9.5	94.18	1.101 Level 2		
10,500.0	7,199.3	7,161.9	7,159.9	80.6	17.1	-89.11	3,138.8	-926.1	152.6	56.0	96.61	1.579		
10,582.1	7,198.4	7,161.3	7,159.2	82.2	17.1	-88.82	3,138.8	-926.0	219.0	120.4	98.56	2.222		
10,600.0	7,198.2	7,161.1	7,159.1	82.6	17.1	-88.75	3,138.8	-926.0	234.7	135.8	98.95	2.372		
10,700.0	7,197.1	7,160.3	7,158.3	84.8	17.1	-88.33	3,138.8	-926.0	326.6	225.3	101.24	3.225		
10,800.0	7,196.0	7,159.6	7,157.5	87.1	17.1	-87.92	3,138.8	-926.0	422.1	318.6	103.54	4.077		
10,900.0	7,194.9	7,158.8	7,156.7	89.4	17.1	-87.51	3,138.8	-926.0	519.4	413.5	105.83	4.908		
11,000.0	7,193.8	7,158.0	7,155.9	91.7	17.1	-87.09	3,138.8	-926.0	617.5	509.4	108.12	5.711		
11,100.0	7,192.7	7,157.2	7,155.1	94.0	17.1	-86.68	3,138.8	-926.0	716.1	605.7	110.41	6.486		
11,200.0	7,191.6	7,156.4	7,154.3	96.2	17.1	-86.27	3,138.8	-926.0	815.1	702.4	112.69	7.233		
11,300.0	7,190.5	7,155.6	7,153.5	98.5	17.1	-85.86	3,138.8	-926.0	914.3	799.3	114.97	7.952		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.20-T3N-R66W - Soco 20-8K (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,800.0	7,207.0	7,192.1	7,190.9	65.6	18.3	91.89	3,191.9	-92.0	979.6	897.6	81.98	11.950		
9,900.0	7,205.9	7,192.4	7,191.2	67.7	18.3	91.92	3,191.9	-92.0	916.1	831.9	84.19	10.880		
10,000.0	7,204.8	7,192.6	7,191.5	69.9	18.3	91.94	3,191.9	-92.1	859.5	773.0	86.42	9.945		
10,100.0	7,203.7	7,192.9	7,191.8	72.1	18.3	91.96	3,191.9	-92.1	811.3	722.6	88.65	9.151		
10,200.0	7,202.6	7,193.2	7,192.0	74.3	18.3	91.98	3,192.0	-92.1	773.1	682.2	90.89	8.506		
10,300.0	7,201.5	7,193.5	7,192.3	76.4	18.3	92.00	3,192.0	-92.1	746.5	653.3	93.13	8.015		
10,386.9	7,200.5	7,193.7	7,192.6	78.4	18.3	92.02	3,192.0	-92.1	733.7	638.6	95.09	7.715		
10,400.0	7,200.4	7,193.8	7,192.6	78.6	18.3	92.02	3,192.0	-92.1	732.6	637.2	95.43	7.677		
10,439.1	7,199.9	7,193.9	7,192.7	79.4	18.3	92.02	3,192.0	-92.1	731.3	634.9	96.38	7.588 CC, ES		
10,500.0	7,199.3	7,194.1	7,193.0	80.6	18.3	92.03	3,192.0	-92.1	734.5	636.7	97.84	7.507		
10,582.1	7,198.4	7,194.5	7,193.4	82.2	18.3	92.05	3,192.0	-92.1	748.6	648.9	99.78	7.503 SF		
10,600.0	7,198.2	7,194.6	7,193.4	82.6	18.3	92.06	3,192.0	-92.1	753.1	653.0	100.17	7.519		
10,700.0	7,197.1	7,195.1	7,194.0	84.8	18.3	92.10	3,192.0	-92.1	785.3	682.8	102.46	7.665		
10,800.0	7,196.0	7,195.6	7,194.5	87.1	18.3	92.14	3,192.0	-92.2	828.3	723.6	104.75	7.908		
10,900.0	7,194.9	7,196.2	7,195.0	89.4	18.3	92.18	3,192.0	-92.2	880.7	773.6	107.05	8.227		
11,000.0	7,193.8	7,196.7	7,195.5	91.7	18.3	92.22	3,192.0	-92.2	940.7	831.4	109.35	8.603		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	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		
0.0	0.0	0.0	0.0	0.0	0.0	179.40	-30.0	0.3	30.0						
100.0	100.0	99.0	99.0	0.1	0.1	179.40	-30.0	0.3	30.0	29.7	0.27	109.579			
200.0	200.0	199.0	199.0	0.4	0.4	179.40	-30.0	0.3	30.0	29.1	0.82	36.466 CC			
300.0	300.0	298.9	298.9	0.7	0.7	-178.18	-30.1	-1.0	30.2	28.8	1.36	22.236 ES			
400.0	400.0	398.6	398.5	1.0	0.9	-171.11	-30.7	-4.8	31.1	29.2	1.89	16.394			
500.0	500.0	498.1	497.8	1.2	1.2	-160.49	-31.6	-11.2	33.5	31.1	2.45	13.686			
600.0	600.0	597.2	596.4	1.5	1.5	-148.54	-32.9	-20.1	38.6	35.6	3.03	12.727			
700.0	700.0	695.8	694.5	1.8	1.9	-32.33	-34.5	-31.5	45.8	42.3	3.57	12.829			
800.0	799.9	794.3	791.9	2.0	2.3	-24.78	-36.5	-45.4	53.9	49.8	4.11	13.097			
900.0	899.7	892.4	888.6	2.3	2.7	-18.99	-38.8	-61.6	62.4	57.8	4.67	13.377			
1,000.0	999.3	990.3	984.7	2.6	3.2	-14.37	-41.5	-80.3	71.3	66.1	5.23	13.635			
1,100.0	1,098.6	1,088.0	1,080.0	2.9	3.7	-10.57	-44.5	-101.4	80.4	74.6	5.80	13.859			
1,200.0	1,197.5	1,185.3	1,174.4	3.2	4.3	-7.36	-47.8	-124.8	89.7	83.3	6.38	14.047			
1,300.0	1,296.1	1,282.5	1,268.0	3.6	4.9	-4.56	-51.5	-150.5	99.0	92.0	6.97	14.196			
1,405.0	1,399.0	1,384.9	1,366.1	4.1	5.7	-1.97	-55.7	-180.1	108.8	101.2	7.61	14.300			
1,500.0	1,492.0	1,479.5	1,456.3	4.6	6.4	0.08	-59.7	-208.0	117.2	109.0	8.21	14.278			
1,600.0	1,589.7	1,579.0	1,551.3	5.1	7.1	1.94	-63.9	-237.3	126.2	117.3	8.85	14.255			
1,700.0	1,687.5	1,678.6	1,646.4	5.6	7.9	3.55	-68.1	-266.7	135.2	125.7	9.50	14.228			
1,800.0	1,785.3	1,778.1	1,741.4	6.1	8.6	4.96	-72.2	-296.0	144.4	134.2	10.17	14.196			
1,900.0	1,883.1	1,877.6	1,836.4	6.7	9.4	6.20	-76.4	-325.3	153.6	142.8	10.85	14.160			
2,000.0	1,980.9	1,977.1	1,931.4	7.2	10.1	7.30	-80.6	-354.7	162.9	151.4	11.54	14.121			
2,100.0	2,078.7	2,076.6	2,026.4	7.7	10.9	8.28	-84.8	-384.0	172.3	160.1	12.24	14.078			
2,200.0	2,176.5	2,176.2	2,121.4	8.3	11.7	9.16	-89.0	-413.4	181.7	168.8	12.95	14.033			
2,300.0	2,274.3	2,275.7	2,216.4	8.8	12.4	9.96	-93.2	-442.7	191.1	177.5	13.67	13.986			
2,400.0	2,372.0	2,375.2	2,311.4	9.4	13.2	10.67	-97.4	-472.1	200.6	186.2	14.39	13.940			
2,500.0	2,469.8	2,474.7	2,406.4	10.0	14.0	11.33	-101.6	-501.4	210.1	195.0	15.12	13.893			
2,600.0	2,567.6	2,574.2	2,501.4	10.5	14.8	11.92	-105.7	-530.8	219.6	203.8	15.86	13.846			
2,700.0	2,665.4	2,673.8	2,596.4	11.1	15.5	12.47	-109.9	-560.1	229.2	212.6	16.61	13.800			
2,800.0	2,763.2	2,773.3	2,691.4	11.6	16.3	12.97	-114.1	-589.4	238.8	221.4	17.36	13.755			
2,900.0	2,861.0	2,872.8	2,786.4	12.2	17.1	13.44	-118.3	-618.8	248.3	230.2	18.11	13.711			
3,000.0	2,958.8	2,972.3	2,881.4	12.8	17.8	13.87	-122.5	-648.1	257.9	239.1	18.87	13.668			
3,100.0	3,056.6	3,071.8	2,976.4	13.3	18.6	14.27	-126.7	-677.5	267.6	247.9	19.63	13.627			
3,200.0	3,154.3	3,171.4	3,071.4	13.9	19.4	14.64	-130.9	-706.8	277.2	256.8	20.40	13.587			
3,300.0	3,252.1	3,270.9	3,166.4	14.5	20.2	14.98	-135.1	-736.2	286.8	265.7	21.17	13.548			
3,400.0	3,349.9	3,370.4	3,261.4	15.0	20.9	15.31	-139.3	-765.5	296.5	274.5	21.94	13.510			
3,500.0	3,447.7	3,469.9	3,356.4	15.6	21.7	15.61	-143.4	-794.9	306.1	283.4	22.72	13.474			
3,600.0	3,545.5	3,569.4	3,451.4	16.1	22.5	15.90	-147.6	-824.2	315.8	292.3	23.50	13.439			
3,700.0	3,643.3	3,669.0	3,546.4	16.7	23.3	16.17	-151.8	-853.5	325.5	301.2	24.28	13.406			
3,800.0	3,741.1	3,768.5	3,641.4	17.3	24.0	16.42	-156.0	-882.9	335.1	310.1	25.06	13.374			
3,900.0	3,838.9	3,868.0	3,736.4	17.9	24.8	16.66	-160.2	-912.2	344.8	319.0	25.84	13.342			
4,000.0	3,936.6	3,967.5	3,831.4	18.4	25.6	16.88	-164.4	-941.6	354.5	327.9	26.63	13.312			
4,100.0	4,034.4	4,067.0	3,926.4	19.0	26.4	17.09	-168.6	-970.9	364.2	336.8	27.42	13.283			
4,200.0	4,132.2	4,166.6	4,021.4	19.6	27.2	17.30	-172.8	-1,000.3	373.9	345.7	28.21	13.256			
4,300.0	4,230.0	4,266.1	4,116.4	20.1	27.9	17.49	-176.9	-1,029.6	383.6	354.6	29.00	13.229			
4,400.0	4,327.8	4,365.6	4,211.4	20.7	28.7	17.67	-181.1	-1,059.0	393.3	363.5	29.79	13.203			
4,500.0	4,425.6	4,465.1	4,306.4	21.3	29.5	17.85	-185.3	-1,088.3	403.0	372.4	30.58	13.178			
4,600.0	4,523.4	4,564.6	4,401.4	21.8	30.3	18.01	-189.5	-1,117.6	412.7	381.3	31.38	13.154			
4,700.0	4,621.2	4,664.2	4,496.4	22.4	31.0	18.17	-193.7	-1,147.0	422.4	390.3	32.17	13.131			
4,800.0	4,718.9	4,763.7	4,591.5	23.0	31.8	18.32	-197.9	-1,176.3	432.2	399.2	32.97	13.108			
4,900.0	4,816.7	4,863.2	4,686.5	23.5	32.6	18.46	-202.1	-1,205.7	441.9	408.1	33.77	13.087			
5,000.0	4,914.5	4,962.7	4,781.5	24.1	33.4	18.60	-206.3	-1,235.0	451.6	417.0	34.56	13.066			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W - Niles Miller 20Q-221 - Wellbore #1 - Plan #1 (12-01-15)											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			
Depth (ft)	(ft)	Depth (ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,088.2	5,000.7	5,050.5	4,865.2	24.6	34.1	18.72	-210.0	-1,260.9	460.2	424.9	35.27	13.048			
5,100.0	5,012.3	5,062.2	4,876.5	24.7	34.2	18.74	-210.4	-1,264.4	461.4	426.0	35.36	13.049			
5,200.0	5,110.5	5,161.5	4,971.3	25.1	34.9	18.86	-214.6	-1,293.6	473.1	437.1	36.01	13.139			
5,300.0	5,209.3	5,260.4	5,065.6	25.4	35.7	18.86	-218.8	-1,322.8	488.2	451.6	36.58	13.347			
5,400.0	5,308.6	5,358.7	5,159.5	25.7	36.5	18.77	-222.9	-1,351.8	506.4	469.4	37.05	13.668			
5,500.0	5,408.3	5,456.3	5,252.6	25.9	37.2	18.58	-227.0	-1,380.6	528.0	490.5	37.44	14.101			
5,600.0	5,508.1	5,553.1	5,345.0	26.1	38.0	18.33	-231.1	-1,409.1	552.8	515.0	37.75	14.643			
5,691.9	5,600.0	5,641.2	5,429.2	26.3	38.7	-88.01	-234.8	-1,435.1	578.4	540.7	37.67	15.353			
5,700.0	5,608.1	5,649.0	5,436.6	26.3	38.7	-88.05	-235.1	-1,437.4	580.8	543.1	37.71	15.403			
5,800.0	5,708.1	5,767.0	5,549.8	26.4	39.5	-88.62	-239.8	-1,470.3	608.6	570.5	38.12	15.964			
5,900.0	5,808.1	5,890.4	5,669.6	26.6	40.1	-89.08	-244.0	-1,499.7	632.4	593.9	38.56	16.403			
6,000.0	5,908.1	6,016.4	5,793.0	26.7	40.6	-89.43	-247.6	-1,524.5	652.0	613.0	39.00	16.719			
6,100.0	6,008.1	6,144.3	5,919.4	26.8	41.0	-89.69	-250.4	-1,544.1	667.4	627.9	39.45	16.917			
6,200.0	6,108.1	6,273.8	6,048.1	27.0	41.4	-89.86	-252.4	-1,558.2	678.3	638.4	39.90	17.000			
6,300.0	6,208.1	6,404.3	6,178.3	27.2	41.6	-89.97	-253.6	-1,566.7	684.8	644.4	40.34	16.973			
6,400.0	6,308.1	6,533.2	6,307.1	27.3	41.8	-90.00	-254.0	-1,569.2	686.7	645.9	40.78	16.841			
6,500.0	6,408.1	6,633.2	6,407.1	27.5	41.9	-90.00	-254.0	-1,569.2	686.7	645.5	41.17	16.680			
6,557.3	6,465.4	6,690.5	6,464.4	27.6	41.9	-90.00	-254.0	-1,569.2	686.7	645.3	41.40	16.588			
6,600.0	6,508.1	6,733.2	6,507.1	27.6	42.0	-91.00	-252.8	-1,569.2	686.7	644.9	41.79	16.432			
6,650.0	6,557.9	6,783.2	6,556.9	27.7	42.0	-91.00	-248.5	-1,569.2	686.8	644.9	41.94	16.377			
6,700.0	6,607.3	6,833.2	6,606.3	27.7	42.0	-90.99	-240.8	-1,569.2	686.9	644.9	42.05	16.335			
6,750.0	6,656.1	6,883.2	6,655.2	27.8	42.1	-90.98	-230.0	-1,569.2	687.1	645.0	42.14	16.305			
6,800.0	6,704.1	6,933.2	6,703.2	27.8	42.1	-90.97	-216.0	-1,569.2	687.4	645.2	42.21	16.286			
6,850.0	6,751.0	6,983.3	6,750.2	27.8	42.1	-90.95	-198.9	-1,569.2	687.7	645.4	42.26	16.274			
6,900.0	6,796.7	7,033.3	6,796.0	27.8	42.1	-90.93	-178.7	-1,569.2	688.0	645.7	42.29	16.267			
6,950.0	6,841.0	7,083.3	6,840.3	27.8	42.1	-90.90	-155.6	-1,569.2	688.4	646.1	42.33	16.262			
7,000.0	6,883.7	7,133.4	6,883.1	27.8	42.1	-90.87	-129.6	-1,569.2	688.9	646.5	42.38	16.256			
7,050.0	6,924.7	7,183.4	6,924.1	27.8	42.1	-90.84	-100.9	-1,569.2	689.3	646.9	42.44	16.244			
7,100.0	6,963.6	7,233.5	6,963.1	27.8	42.1	-90.80	-69.6	-1,569.2	689.9	647.4	42.53	16.222			
7,150.0	7,000.4	7,283.5	6,999.9	27.8	42.1	-90.76	-35.8	-1,569.2	690.5	647.8	42.66	16.187			
7,200.0	7,034.9	7,333.5	7,034.5	27.8	42.2	-90.72	0.4	-1,569.2	691.1	648.2	42.83	16.134			
7,250.0	7,067.0	7,383.6	7,066.6	27.8	42.2	-90.67	38.8	-1,569.2	691.7	648.7	43.07	16.059			
7,300.0	7,096.5	7,433.6	7,096.2	27.8	42.2	-90.62	79.1	-1,569.1	692.4	649.0	43.39	15.959			
7,350.0	7,123.3	7,483.7	7,123.1	27.8	42.2	-90.57	121.4	-1,569.1	693.2	649.4	43.78	15.834			
7,400.0	7,147.3	7,533.7	7,147.1	27.9	42.3	-90.51	165.3	-1,569.1	693.9	649.7	44.25	15.681			
7,450.0	7,168.4	7,583.8	7,168.2	27.9	42.4	-90.46	210.6	-1,569.1	694.7	649.9	44.82	15.499			
7,500.0	7,186.4	7,633.8	7,186.3	28.0	42.5	-90.40	257.3	-1,569.1	695.5	650.0	45.49	15.290			
7,550.0	7,201.4	7,683.9	7,201.3	28.2	42.6	-90.34	305.0	-1,569.1	696.3	650.0	46.25	15.055			
7,600.0	7,213.2	7,733.9	7,213.1	28.4	42.7	-90.28	353.7	-1,569.1	697.1	650.0	47.11	14.797			
7,650.0	7,221.8	7,784.0	7,221.8	28.6	42.9	-90.21	402.9	-1,569.0	698.0	649.9	48.07	14.520			
7,700.0	7,227.2	7,834.1	7,227.1	28.9	43.1	-90.15	452.7	-1,569.0	698.8	649.7	49.12	14.228			
7,750.0	7,229.3	7,884.1	7,229.3	29.3	43.3	-90.09	502.7	-1,569.0	699.7	649.4	50.25	13.925			
7,765.7	7,229.3	7,899.8	7,229.2	29.4	43.4	-90.06	518.4	-1,569.0	700.0	649.3	50.61	13.829			
7,800.0	7,228.9	7,934.1	7,228.9	29.7	43.5	-90.06	552.7	-1,569.0	700.5	649.1	51.46	13.613			
7,900.0	7,227.8	8,034.1	7,227.8	30.6	44.1	-90.06	652.7	-1,569.0	702.3	648.2	54.08	12.986			
8,000.0	7,226.7	8,134.1	7,226.7	31.8	44.8	-90.06	752.7	-1,569.0	704.0	647.0	56.96	12.359			
8,100.0	7,225.6	8,234.1	7,225.6	33.1	45.7	-90.06	852.6	-1,568.9	705.7	645.6	60.07	11.748			
8,200.0	7,224.5	8,334.1	7,224.5	34.5	46.6	-90.06	952.6	-1,568.9	707.4	644.0	63.37	11.162			
8,300.0	7,223.4	8,434.0	7,223.4	36.1	47.7	-90.06	1,052.6	-1,568.9	709.1	642.3	66.84	10.609			
8,400.0	7,222.3	8,534.0	7,222.3	37.7	48.8	-90.06	1,152.6	-1,568.8	710.8	640.4	70.45	10.090			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	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		
8,500.0	7,221.2	8,634.0	7,221.2	39.5	50.1	-90.06	1,252.6	-1,568.8	712.5	638.4	74.18	9.606			
8,600.0	7,220.1	8,734.0	7,220.1	41.3	51.4	-90.06	1,352.5	-1,568.8	714.3	636.3	78.01	9.156			
8,700.0	7,219.0	8,834.0	7,219.0	43.1	52.9	-90.06	1,452.5	-1,568.8	716.0	634.0	81.92	8.739			
8,800.0	7,217.9	8,934.0	7,217.9	45.0	54.4	-90.06	1,552.5	-1,568.7	717.7	631.8	85.92	8.353			
8,900.0	7,216.8	9,034.0	7,216.8	46.9	56.0	-90.06	1,652.5	-1,568.7	719.4	629.4	89.98	7.995			
9,000.0	7,215.7	9,133.9	7,215.7	48.9	57.6	-90.06	1,752.5	-1,568.7	721.1	627.0	94.10	7.663			
9,100.0	7,214.7	9,233.9	7,214.6	50.9	59.3	-90.06	1,852.4	-1,568.6	722.8	624.6	98.27	7.356			
9,200.0	7,213.6	9,333.9	7,213.5	52.9	61.0	-90.06	1,952.4	-1,568.6	724.5	622.1	102.48	7.070			
9,300.0	7,212.5	9,433.9	7,212.4	55.0	62.8	-90.06	2,052.4	-1,568.6	726.3	619.5	106.73	6.805			
9,400.0	7,211.4	9,533.9	7,211.3	57.1	64.7	-90.06	2,152.4	-1,568.6	728.0	617.0	111.02	6.557			
9,500.0	7,210.3	9,633.9	7,210.2	59.2	66.5	-90.06	2,252.4	-1,568.5	729.7	614.4	115.33	6.327			
9,600.0	7,209.2	9,733.9	7,209.1	61.3	68.4	-90.06	2,352.3	-1,568.5	731.4	611.7	119.68	6.111			
9,700.0	7,208.1	9,833.8	7,208.0	63.4	70.3	-90.06	2,452.3	-1,568.5	733.1	609.1	124.05	5.910			
9,800.0	7,207.0	9,933.8	7,206.9	65.6	72.3	-90.06	2,552.3	-1,568.5	734.8	606.4	128.44	5.721			
9,900.0	7,205.9	10,033.8	7,205.8	67.7	74.3	-90.06	2,652.3	-1,568.4	736.5	603.7	132.85	5.544			
10,000.0	7,204.8	10,133.8	7,204.7	69.9	76.3	-90.06	2,752.3	-1,568.4	738.3	601.0	137.28	5.378			
10,100.0	7,203.7	10,233.8	7,203.6	72.1	78.3	-90.06	2,852.2	-1,568.4	740.0	598.3	141.72	5.221			
10,200.0	7,202.6	10,333.8	7,202.5	74.3	80.3	-90.06	2,952.2	-1,568.3	741.7	595.5	146.18	5.074			
10,300.0	7,201.5	10,433.8	7,201.4	76.4	82.4	-90.06	3,052.2	-1,568.3	743.4	592.7	150.65	4.935			
10,386.9	7,200.5	10,520.7	7,200.4	78.4	84.2	-90.06	3,139.1	-1,568.3	744.9	590.3	154.55	4.820			
10,400.0	7,200.4	10,533.7	7,200.3	78.6	84.5	-90.06	3,152.2	-1,568.3	745.1	589.8	155.32	4.797			
10,500.0	7,199.3	10,633.7	7,199.2	80.6	86.6	-90.09	3,252.2	-1,568.3	744.6	583.6	160.96	4.626			
10,582.1	7,198.4	10,715.7	7,198.3	82.2	88.3	-90.10	3,334.1	-1,568.2	741.6	576.1	165.50	4.481			
10,600.0	7,198.2	10,733.6	7,198.1	82.6	88.7	-90.10	3,352.1	-1,568.2	740.7	574.4	166.28	4.454			
10,700.0	7,197.1	10,833.5	7,197.0	84.8	90.8	-90.10	3,451.9	-1,568.2	735.6	564.8	170.82	4.306			
10,800.0	7,196.0	10,933.4	7,195.9	87.1	92.9	-90.10	3,551.8	-1,568.2	730.5	555.1	175.37	4.165			
10,900.0	7,194.9	11,033.3	7,194.8	89.4	95.0	-90.11	3,651.7	-1,568.1	725.4	545.5	179.93	4.031			
11,000.0	7,193.8	11,133.1	7,193.7	91.7	97.2	-90.11	3,751.5	-1,568.1	720.3	535.8	184.50	3.904			
11,100.0	7,192.7	11,233.0	7,192.6	94.0	99.3	-90.11	3,851.4	-1,568.1	715.2	526.1	189.07	3.783			
11,200.0	7,191.6	11,332.9	7,191.5	96.2	101.5	-90.11	3,951.3	-1,568.1	710.1	516.5	193.65	3.667			
11,300.0	7,190.5	11,432.7	7,190.4	98.5	103.7	-90.11	4,051.1	-1,568.0	705.0	506.8	198.24	3.556			
11,400.0	7,189.4	11,532.6	7,189.3	100.8	105.8	-90.11	4,151.0	-1,568.0	699.9	497.1	202.83	3.451			
11,500.0	7,188.3	11,632.5	7,188.2	103.1	108.0	-90.11	4,250.9	-1,568.0	694.8	487.4	207.42	3.350			
11,600.0	7,187.2	11,732.4	7,187.1	105.5	110.2	-90.11	4,350.7	-1,568.0	689.7	477.7	212.02	3.253			
11,708.1	7,186.0	11,832.9	7,186.0	107.9	112.4	-90.11	4,451.3	-1,567.9	684.3	467.4	216.83	3.156 SF			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W - Niles Miller 20Q-321 - Wellbore #1 - Plan #2 (2-5-16)														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	0.0	0.0	0.0	0.0	179.68	-15.0	0.1	15.0	15.0	0.00	N/A			
100.0	100.0	99.0	99.0	0.1	0.1	179.68	-15.0	0.1	15.0	14.7	0.27	54.829			
200.0	200.0	199.0	199.0	0.4	0.4	179.68	-15.0	0.1	15.0	14.2	0.82	18.246			
300.0	300.0	299.0	299.0	0.7	0.7	179.68	-15.0	0.1	15.0	13.6	1.37	10.933			
400.0	400.0	399.0	399.0	1.0	1.0	179.68	-15.0	0.1	15.0	13.1	1.92	7.805 CC			
500.0	500.0	498.9	498.9	1.2	1.2	-175.60	-15.2	-1.2	15.3	12.8	2.45	6.233 ES			
600.0	600.0	598.7	598.6	1.5	1.5	-162.68	-16.0	-5.0	16.8	13.8	2.98	5.624			
700.0	700.0	698.3	698.0	1.8	1.7	-43.05	-17.2	-11.3	19.7	16.2	3.50	5.624			
800.0	799.9	797.7	797.0	2.0	2.0	-32.95	-19.0	-20.2	23.3	19.3	4.02	5.792			
900.0	899.7	897.0	895.6	2.3	2.4	-25.31	-21.2	-31.6	27.3	22.7	4.55	5.990			
1,000.0	999.3	996.2	993.8	2.6	2.7	-19.35	-23.9	-45.5	31.5	26.4	5.10	6.185			
1,100.0	1,098.6	1,095.3	1,091.4	2.9	3.2	-14.51	-27.2	-61.8	35.9	30.3	5.65	6.363			
1,200.0	1,197.5	1,194.2	1,188.5	3.2	3.6	-10.47	-30.9	-80.6	40.5	34.3	6.21	6.521			
1,300.0	1,296.1	1,293.0	1,284.9	3.6	4.1	-6.99	-35.0	-101.9	45.1	38.4	6.78	6.658			
1,405.0	1,399.0	1,396.8	1,385.5	4.1	4.7	-3.79	-39.9	-126.8	50.1	42.7	7.39	6.772			
1,500.0	1,492.0	1,491.7	1,477.3	4.6	5.3	-1.31	-44.5	-150.3	54.1	46.2	7.97	6.796			
1,600.0	1,589.7	1,591.6	1,574.0	5.1	5.9	0.92	-49.4	-175.1	58.5	50.0	8.59	6.818			
1,700.0	1,687.5	1,691.4	1,670.6	5.6	6.6	2.84	-54.3	-199.9	63.0	53.8	9.22	6.835			
1,800.0	1,785.3	1,791.3	1,767.2	6.1	7.2	4.49	-59.2	-224.7	67.5	57.7	9.87	6.846			
1,900.0	1,883.1	1,891.2	1,863.9	6.7	7.9	5.94	-64.0	-249.5	72.1	61.6	10.53	6.851			
2,000.0	1,980.9	1,991.1	1,960.5	7.2	8.5	7.22	-68.9	-274.3	76.8	65.6	11.20	6.852			
2,100.0	2,078.7	2,091.0	2,057.1	7.7	9.2	8.35	-73.8	-299.0	81.4	69.5	11.89	6.849			
2,200.0	2,176.5	2,190.8	2,153.8	8.3	9.8	9.36	-78.6	-323.8	86.1	73.5	12.58	6.843			
2,300.0	2,274.3	2,290.7	2,250.4	8.8	10.5	10.26	-83.5	-348.6	90.8	77.5	13.29	6.834			
2,400.0	2,372.0	2,390.6	2,347.0	9.4	11.1	11.08	-88.4	-373.4	95.5	81.5	14.00	6.824			
2,500.0	2,469.8	2,490.5	2,443.7	10.0	11.8	11.81	-93.3	-398.2	100.3	85.6	14.72	6.812			
2,600.0	2,567.6	2,590.4	2,540.3	10.5	12.4	12.48	-98.1	-423.0	105.1	89.6	15.45	6.799			
2,700.0	2,665.4	2,690.2	2,636.9	11.1	13.1	13.10	-103.0	-447.8	109.8	93.7	16.19	6.786			
2,800.0	2,763.2	2,790.1	2,733.5	11.6	13.8	13.66	-107.9	-472.6	114.6	97.7	16.93	6.772			
2,900.0	2,861.0	2,890.0	2,830.2	12.2	14.4	14.17	-112.8	-497.4	119.4	101.8	17.67	6.758			
3,000.0	2,958.8	2,989.9	2,926.8	12.8	15.1	14.65	-117.6	-522.1	124.2	105.8	18.42	6.744			
3,100.0	3,056.6	3,089.8	3,023.4	13.3	15.8	15.09	-122.5	-546.9	129.0	109.9	19.17	6.730			
3,200.0	3,154.3	3,189.6	3,120.1	13.9	16.4	15.50	-127.4	-571.7	133.9	113.9	19.93	6.716			
3,300.0	3,252.1	3,289.5	3,216.7	14.5	17.1	15.88	-132.2	-596.5	138.7	118.0	20.69	6.703			
3,400.0	3,349.9	3,389.4	3,313.3	15.0	17.8	16.23	-137.1	-621.3	143.5	122.1	21.46	6.689			
3,500.0	3,447.7	3,489.3	3,410.0	15.6	18.4	16.57	-142.0	-646.1	148.4	126.1	22.22	6.676			
3,600.0	3,545.5	3,589.1	3,506.6	16.1	19.1	16.88	-146.9	-670.9	153.2	130.2	22.99	6.664			
3,700.0	3,643.3	3,689.0	3,603.2	16.7	19.8	17.17	-151.7	-695.7	158.1	134.3	23.76	6.651			
3,800.0	3,741.1	3,788.9	3,699.9	17.3	20.4	17.44	-156.6	-720.4	162.9	138.4	24.54	6.640			
3,900.0	3,838.9	3,888.8	3,796.5	17.9	21.1	17.70	-161.5	-745.2	167.8	142.5	25.31	6.628			
4,000.0	3,936.6	3,988.7	3,893.1	18.4	21.8	17.95	-166.3	-770.0	172.6	146.5	26.09	6.617			
4,100.0	4,034.4	4,088.5	3,989.8	19.0	22.4	18.18	-171.2	-794.8	177.5	150.6	26.87	6.606			
4,200.0	4,132.2	4,188.4	4,086.4	19.6	23.1	18.39	-176.1	-819.6	182.4	154.7	27.65	6.595			
4,300.0	4,230.0	4,288.3	4,183.0	20.1	23.8	18.60	-181.0	-844.4	187.2	158.8	28.43	6.585			
4,400.0	4,327.8	4,388.2	4,279.7	20.7	24.4	18.80	-185.8	-869.2	192.1	162.9	29.22	6.575			
4,500.0	4,425.6	4,488.1	4,376.3	21.3	25.1	18.98	-190.7	-894.0	197.0	167.0	30.00	6.565			
4,600.0	4,523.4	4,587.9	4,472.9	21.8	25.8	19.16	-195.6	-918.8	201.8	171.1	30.79	6.556			
4,700.0	4,621.2	4,687.8	4,569.5	22.4	26.5	19.33	-200.4	-943.5	206.7	175.1	31.57	6.547			
4,800.0	4,718.9	4,787.7	4,666.2	23.0	27.1	19.49	-205.3	-968.3	211.6	179.2	32.36	6.538			
4,900.0	4,816.7	4,887.6	4,762.8	23.5	27.8	19.65	-210.2	-993.1	216.5	183.3	33.15	6.530			
5,000.0	4,914.5	4,987.5	4,859.4	24.1	28.5	19.79	-215.1	-1,017.9	221.3	187.4	33.94	6.522			

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W - Niles Miller 20Q-321 - Wellbore #1 - Plan #2 (2-5-16)											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			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,088.2	5,000.7	5,075.5	4,944.6	24.6	29.0	19.92	-219.4	-1,039.8	225.7	191.0	34.64	6.515			
5,100.0	5,012.3	5,087.3	4,956.1	24.7	29.1	19.94	-219.9	-1,042.7	226.3	191.5	34.72	6.516			
5,200.0	5,110.5	5,187.1	5,052.6	25.1	29.8	19.94	-224.8	-1,067.5	233.2	197.8	35.36	6.593			
5,300.0	5,209.3	5,286.6	5,148.8	25.4	30.5	19.68	-229.6	-1,092.1	243.3	207.5	35.87	6.783			
5,400.0	5,308.6	5,385.6	5,244.7	25.7	31.1	19.21	-234.5	-1,116.7	256.8	220.5	36.27	7.081			
5,500.0	5,408.3	5,491.0	5,346.8	25.9	31.8	18.57	-239.4	-1,142.0	272.7	236.2	36.55	7.462			
5,600.0	5,508.1	5,600.1	5,453.5	26.1	32.2	17.93	-243.8	-1,164.4	288.5	251.8	36.71	7.858			
5,691.9	5,600.0	5,701.0	5,552.8	26.3	32.6	-88.70	-247.2	-1,181.6	302.7	266.1	36.55	8.280			
5,700.0	5,608.1	5,709.9	5,561.7	26.3	32.6	-88.76	-247.5	-1,182.9	303.9	267.3	36.58	8.308			
5,800.0	5,708.1	5,820.8	5,671.5	26.4	33.0	-89.34	-250.3	-1,197.5	317.0	280.1	36.89	8.592			
5,900.0	5,808.1	5,932.6	5,782.9	26.6	33.2	-89.72	-252.4	-1,207.9	326.3	289.1	37.24	8.762			
6,000.0	5,908.1	6,045.1	5,895.2	26.7	33.4	-89.93	-253.6	-1,214.1	331.8	294.2	37.62	8.820			
6,100.0	6,008.1	6,157.1	6,007.1	26.8	33.6	-90.00	-254.0	-1,216.0	333.5	295.5	38.03	8.770			
6,200.0	6,108.1	6,257.1	6,107.1	27.0	33.7	-90.00	-254.0	-1,216.0	333.5	295.1	38.43	8.679			
6,300.0	6,208.1	6,357.1	6,207.1	27.2	33.8	-90.00	-254.0	-1,216.0	333.5	294.7	38.83	8.588			
6,400.0	6,308.1	6,457.1	6,307.1	27.3	34.0	-90.00	-254.0	-1,216.0	333.5	294.3	39.24	8.499			
6,500.0	6,408.1	6,557.1	6,407.1	27.5	34.1	-90.00	-254.0	-1,216.0	333.5	293.8	39.65	8.411			
6,557.3	6,465.4	6,614.4	6,464.4	27.6	34.2	-90.00	-254.0	-1,216.0	333.5	293.6	39.89	8.361			
6,600.0	6,508.1	6,657.0	6,507.1	27.6	34.2	-91.20	-254.0	-1,216.0	333.5	293.3	40.23	8.290			
6,650.0	6,557.9	6,706.8	6,556.9	27.7	34.3	-91.95	-254.0	-1,216.0	333.6	293.4	40.23	8.294			
6,700.0	6,607.3	6,757.0	6,607.0	27.7	34.3	-93.03	-252.7	-1,216.0	333.9	293.8	40.13	8.322			
6,750.0	6,656.1	6,807.6	6,657.4	27.8	34.4	-94.11	-248.2	-1,216.0	334.4	294.4	40.02	8.356			
6,800.0	6,704.1	6,858.6	6,707.8	27.8	34.4	-95.17	-240.2	-1,216.0	335.1	295.2	39.91	8.397			
6,850.0	6,751.0	6,910.1	6,758.0	27.8	34.5	-96.21	-228.7	-1,216.0	335.9	296.1	39.79	8.441			
6,900.0	6,796.7	6,962.0	6,807.7	27.8	34.5	-97.22	-213.8	-1,216.0	336.9	297.2	39.69	8.488			
6,950.0	6,841.0	7,014.4	6,856.7	27.8	34.5	-98.19	-195.3	-1,216.0	338.0	298.4	39.60	8.535			
7,000.0	6,883.7	7,067.3	6,904.8	27.8	34.5	-99.13	-173.3	-1,216.0	339.3	299.7	39.53	8.581			
7,050.0	6,924.7	7,120.6	6,951.6	27.8	34.5	-100.02	-147.9	-1,216.0	340.6	301.1	39.49	8.625			
7,100.0	6,963.6	7,174.4	6,996.9	27.8	34.5	-100.87	-118.9	-1,216.0	342.1	302.6	39.48	8.665			
7,150.0	7,000.4	7,228.6	7,040.4	27.8	34.5	-101.66	-86.6	-1,216.0	343.6	304.1	39.50	8.699			
7,200.0	7,034.9	7,283.2	7,081.8	27.8	34.5	-102.39	-51.0	-1,216.0	345.2	305.6	39.56	8.726			
7,250.0	7,067.0	7,338.2	7,120.8	27.8	34.5	-103.07	-12.2	-1,216.0	346.8	307.1	39.66	8.743			
7,300.0	7,096.5	7,393.6	7,157.2	27.8	34.6	-103.68	29.6	-1,216.0	348.4	308.6	39.82	8.749			
7,350.0	7,123.3	7,449.4	7,190.6	27.8	34.6	-104.22	74.2	-1,216.0	350.0	310.0	40.03	8.743			
7,400.0	7,147.3	7,505.5	7,220.9	27.9	34.6	-104.69	121.4	-1,216.0	351.6	311.3	40.32	8.720			
7,450.0	7,168.4	7,562.0	7,247.8	27.9	34.7	-105.09	171.0	-1,215.9	353.1	312.4	40.68	8.681			
7,500.0	7,186.4	7,618.6	7,271.0	28.0	34.8	-105.42	222.7	-1,215.9	354.6	313.5	41.12	8.623			
7,550.0	7,201.4	7,675.5	7,290.5	28.2	34.9	-105.67	276.2	-1,215.9	355.9	314.3	41.64	8.548			
7,600.0	7,213.2	7,732.6	7,305.9	28.4	35.1	-105.84	331.2	-1,215.9	357.2	315.0	42.26	8.454			
7,650.0	7,221.8	7,789.9	7,317.2	28.6	35.3	-105.94	387.3	-1,215.9	358.4	315.4	42.96	8.341			
7,700.0	7,227.2	7,847.2	7,324.3	28.9	35.6	-105.97	444.2	-1,215.9	359.4	315.7	43.77	8.212			
7,750.0	7,229.3	7,904.6	7,327.1	29.3	35.9	-105.91	501.5	-1,215.9	360.3	315.7	44.67	8.067			
7,765.7	7,229.3	7,922.7	7,327.0	29.4	36.0	-105.88	519.5	-1,215.9	360.6	315.6	44.97	8.018			
7,800.0	7,228.9	7,957.2	7,326.5	29.7	36.2	-105.84	554.0	-1,215.9	361.1	315.3	45.81	7.884			
7,900.0	7,227.8	8,057.1	7,325.1	30.6	36.9	-105.71	654.0	-1,215.9	362.7	314.3	48.42	7.490			
8,000.0	7,226.7	8,157.1	7,323.6	31.8	37.8	-105.58	753.9	-1,215.8	364.3	313.0	51.31	7.100			
8,100.0	7,225.6	8,257.1	7,322.2	33.1	38.9	-105.46	853.9	-1,215.8	365.8	311.4	54.43	6.722			
8,200.0	7,224.5	8,357.1	7,320.8	34.5	40.1	-105.33	953.9	-1,215.8	367.4	309.7	57.74	6.363			
8,300.0	7,223.4	8,457.1	7,319.3	36.1	41.4	-105.21	1,053.9	-1,215.8	369.0	307.8	61.22	6.027			
8,400.0	7,222.3	8,557.1	7,317.9	37.7	42.8	-105.09	1,153.8	-1,215.8	370.6	305.7	64.84	5.715			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	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		
8,500.0	7,221.2	8,657.0	7,316.4	39.5	44.3	-104.97	1,253.8	-1,215.8	372.1	303.6	68.57	5.427			
8,600.0	7,220.1	8,757.0	7,315.0	41.3	45.9	-104.85	1,353.8	-1,215.7	373.7	301.3	72.41	5.161			
8,700.0	7,219.0	8,857.0	7,313.5	43.1	47.5	-104.73	1,453.8	-1,215.7	375.3	299.0	76.33	4.917			
8,800.0	7,217.9	8,957.0	7,312.1	45.0	49.2	-104.61	1,553.7	-1,215.7	376.9	296.5	80.33	4.692			
8,900.0	7,216.8	9,057.0	7,310.6	46.9	51.0	-104.49	1,653.7	-1,215.7	378.4	294.1	84.39	4.485			
9,000.0	7,215.7	9,157.0	7,309.2	48.9	52.9	-104.38	1,753.7	-1,215.7	380.0	291.5	88.50	4.294			
9,100.0	7,214.7	9,257.0	7,307.7	50.9	54.7	-104.26	1,853.7	-1,215.7	381.6	289.0	92.67	4.118			
9,200.0	7,213.6	9,356.9	7,306.3	52.9	56.6	-104.15	1,953.6	-1,215.6	383.2	286.3	96.87	3.956			
9,300.0	7,212.5	9,456.9	7,304.8	55.0	58.6	-104.04	2,053.6	-1,215.6	384.8	283.7	101.12	3.805			
9,400.0	7,211.4	9,556.9	7,303.4	57.1	60.6	-103.92	2,153.6	-1,215.6	386.4	281.0	105.40	3.666			
9,500.0	7,210.3	9,656.9	7,301.9	59.2	62.6	-103.81	2,253.6	-1,215.6	388.0	278.3	109.71	3.536			
9,600.0	7,209.2	9,756.9	7,300.5	61.3	64.6	-103.70	2,353.5	-1,215.6	389.6	275.5	114.04	3.416			
9,700.0	7,208.1	9,856.9	7,299.0	63.4	66.6	-103.59	2,453.5	-1,215.6	391.2	272.8	118.40	3.304			
9,800.0	7,207.0	9,956.8	7,297.6	65.6	68.7	-103.48	2,553.5	-1,215.5	392.8	270.0	122.78	3.199			
9,900.0	7,205.9	10,056.8	7,296.1	67.7	70.8	-103.38	2,653.4	-1,215.5	394.4	267.2	127.18	3.101			
10,000.0	7,204.8	10,156.6	7,294.6	69.9	73.0	-103.28	2,762.2	-1,214.8	395.3	263.6	131.69	3.002			
10,100.0	7,203.7	10,279.5	7,292.9	72.1	75.1	-103.32	2,876.0	-1,209.9	392.8	256.7	136.06	2.887			
10,200.0	7,202.6	10,379.4	7,291.5	74.3	77.2	-103.42	2,975.7	-1,204.0	388.6	248.3	140.34	2.769			
10,300.0	7,201.5	10,479.4	7,290.0	76.4	79.2	-103.51	3,075.5	-1,198.0	384.4	239.8	144.64	2.658			
10,386.9	7,200.5	10,566.2	7,288.8	78.4	81.0	-103.59	3,162.2	-1,192.9	380.8	232.4	148.39	2.566			
10,400.0	7,200.4	10,579.3	7,288.6	78.6	81.3	-103.61	3,175.2	-1,192.1	380.2	231.1	149.10	2.550			
10,500.0	7,199.3	10,679.1	7,287.1	80.6	83.4	-103.84	3,274.8	-1,186.2	374.0	219.7	154.21	2.425			
10,582.1	7,198.4	10,760.7	7,285.9	82.2	85.1	-104.15	3,356.3	-1,181.3	366.3	208.1	158.21	2.315			
10,600.0	7,198.2	10,778.6	7,285.7	82.6	85.5	-104.22	3,374.1	-1,180.3	364.3	205.4	158.93	2.293			
10,700.0	7,197.1	10,878.0	7,284.2	84.8	87.6	-104.60	3,473.3	-1,174.4	353.6	190.6	163.04	2.169			
10,800.0	7,196.0	10,977.4	7,282.8	87.1	89.8	-105.00	3,572.5	-1,168.5	342.9	175.8	167.12	2.052			
10,900.0	7,194.9	11,076.8	7,281.4	89.4	91.9	-105.43	3,671.7	-1,162.6	332.2	161.0	171.16	1.941			
11,000.0	7,193.8	11,176.1	7,279.9	91.7	94.0	-105.89	3,770.9	-1,156.7	321.5	146.4	175.17	1.836			
11,100.0	7,192.7	11,275.5	7,278.5	94.0	96.2	-106.38	3,870.2	-1,150.8	310.9	131.7	179.13	1.735			
11,200.0	7,191.6	11,374.9	7,277.0	96.2	98.3	-106.91	3,969.4	-1,144.9	300.2	117.2	183.03	1.640			
11,300.0	7,190.5	11,474.3	7,275.6	98.5	100.5	-107.47	4,068.6	-1,139.0	289.6	102.8	186.86	1.550			
11,400.0	7,189.4	11,573.7	7,274.2	100.8	102.7	-108.08	4,167.8	-1,133.1	279.1	88.4	190.62	1.464 Level 3			
11,500.0	7,188.3	11,673.1	7,272.7	103.1	104.8	-108.73	4,267.0	-1,127.2	268.5	74.2	194.29	1.382 Level 3			
11,600.0	7,187.2	11,772.5	7,271.3	105.5	107.0	-109.44	4,366.2	-1,121.3	258.0	60.2	197.85	1.304 Level 3			
11,708.1	7,186.0	11,861.4	7,270.0	107.9	109.0	-110.12	4,454.9	-1,116.0	247.4	46.1	201.35	1.229 Level 2, SF			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W - Niles Miller 20T-221 - Wellbore #1 - Plan #1 (12-01-15)														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	0.0	0.0	0.0	0.0	-0.82	30.1	-0.4	30.1						
100.0	100.0	100.0	100.0	0.1	0.1	-0.82	30.1	-0.4	30.1	29.8	0.27	109.506			
200.0	200.0	200.0	200.0	0.4	0.4	-0.82	30.1	-0.4	30.1	29.3	0.82	36.502			
300.0	300.0	300.0	300.0	0.7	0.7	-0.82	30.1	-0.4	30.1	28.7	1.37	21.901			
400.0	400.0	400.0	400.0	1.0	1.0	-0.82	30.1	-0.4	30.1	28.2	1.92	15.644			
500.0	500.0	500.0	500.0	1.2	1.2	-0.82	30.1	-0.4	30.1	27.6	2.47	12.167			
600.0	600.0	600.0	600.0	1.5	1.5	-0.82	30.1	-0.4	30.1	27.1	3.02	9.955 CC			
700.0	700.0	700.0	700.0	1.8	1.8	107.60	30.1	-0.4	30.5	26.9	3.55	8.575 ES			
800.0	799.9	799.9	799.9	2.0	2.1	114.32	30.1	-0.4	31.9	27.8	4.07	7.824			
900.0	899.7	899.7	899.7	2.3	2.3	124.05	30.1	-0.4	35.1	30.5	4.61	7.609			
1,000.0	999.3	999.3	999.3	2.6	2.6	134.64	30.1	-0.4	40.9	35.8	5.16	7.934			
1,100.0	1,098.6	1,099.9	1,099.8	2.9	2.9	144.33	29.1	-1.2	48.6	42.9	5.68	8.562			
1,200.0	1,197.5	1,200.6	1,200.5	3.2	3.1	152.86	25.9	-3.6	57.0	50.8	6.17	9.243			
1,300.0	1,296.1	1,301.4	1,301.1	3.6	3.3	160.54	20.7	-7.7	66.3	59.6	6.66	9.946			
1,405.0	1,399.0	1,407.3	1,406.5	4.1	3.6	167.83	12.9	-13.6	77.0	69.9	7.19	10.720			
1,500.0	1,492.0	1,503.0	1,501.6	4.6	3.9	173.75	3.9	-20.6	86.8	79.1	7.69	11.286			
1,600.0	1,589.7	1,602.2	1,599.9	5.1	4.2	178.90	-6.2	-28.3	97.0	88.7	8.25	11.756			
1,700.0	1,687.5	1,701.3	1,698.2	5.6	4.5	-176.95	-16.3	-36.0	107.8	98.9	8.84	12.189			
1,800.0	1,785.3	1,800.4	1,796.5	6.1	4.8	-173.57	-26.4	-43.7	119.1	109.6	9.47	12.574			
1,900.0	1,883.1	1,899.6	1,894.9	6.7	5.2	-170.78	-36.5	-51.5	130.7	120.6	10.12	12.909			
2,000.0	1,980.9	1,998.7	1,993.2	7.2	5.5	-168.45	-46.5	-59.2	142.6	131.8	10.80	13.197			
2,100.0	2,078.7	2,097.9	2,091.5	7.7	5.9	-166.48	-56.6	-66.9	154.7	143.2	11.50	13.445			
2,200.0	2,176.5	2,197.0	2,189.8	8.3	6.2	-164.79	-66.7	-74.7	166.9	154.7	12.22	13.658			
2,300.0	2,274.3	2,296.1	2,288.1	8.8	6.6	-163.34	-76.8	-82.4	179.3	166.3	12.95	13.843			
2,400.0	2,372.0	2,395.3	2,386.5	9.4	7.0	-162.07	-86.9	-90.1	191.7	178.0	13.69	14.002			
2,500.0	2,469.8	2,494.4	2,484.8	10.0	7.4	-160.96	-97.0	-97.9	204.3	189.8	14.44	14.141			
2,600.0	2,567.6	2,593.5	2,583.1	10.5	7.7	-159.98	-107.0	-105.6	216.9	201.7	15.21	14.263			
2,700.0	2,665.4	2,692.7	2,681.4	11.1	8.1	-159.11	-117.1	-113.3	229.5	213.6	15.97	14.370			
2,800.0	2,763.2	2,791.8	2,779.7	11.6	8.5	-158.32	-127.2	-121.1	242.2	225.5	16.75	14.465			
2,900.0	2,861.0	2,891.0	2,878.1	12.2	8.9	-157.62	-137.3	-128.8	255.0	237.5	17.53	14.550			
3,000.0	2,958.8	2,990.1	2,976.4	12.8	9.3	-156.98	-147.4	-136.5	267.8	249.5	18.31	14.625			
3,100.0	3,056.6	3,089.2	3,074.7	13.3	9.7	-156.40	-157.4	-144.3	280.6	261.5	19.10	14.693			
3,200.0	3,154.3	3,188.4	3,173.0	13.9	10.1	-155.87	-167.5	-152.0	293.4	273.5	19.89	14.754			
3,300.0	3,252.1	3,287.5	3,271.3	14.5	10.5	-155.39	-177.6	-159.7	306.3	285.6	20.68	14.809			
3,400.0	3,349.9	3,386.6	3,369.7	15.0	10.9	-154.95	-187.7	-167.5	319.2	297.7	21.48	14.859			
3,500.0	3,447.7	3,485.8	3,468.0	15.6	11.3	-154.53	-197.8	-175.2	332.1	309.8	22.28	14.905			
3,600.0	3,545.5	3,584.9	3,566.3	16.1	11.7	-154.15	-207.8	-182.9	345.0	321.9	23.08	14.947			
3,700.0	3,643.3	3,684.1	3,664.6	16.7	12.1	-153.80	-217.9	-190.7	357.9	334.0	23.88	14.986			
3,800.0	3,741.1	3,783.2	3,762.9	17.3	12.5	-153.47	-228.0	-198.4	370.9	346.2	24.69	15.021			
3,900.0	3,838.9	3,880.7	3,859.6	17.9	12.8	-153.19	-237.8	-205.9	383.9	358.4	25.47	15.070			
4,000.0	3,936.6	3,973.9	3,952.3	18.4	13.1	-153.23	-245.4	-211.7	398.0	371.9	26.12	15.239			
4,100.0	4,034.4	4,066.6	4,044.8	19.0	13.3	-153.64	-250.6	-215.7	413.6	386.9	26.67	15.505			
4,200.0	4,132.2	4,158.6	4,136.7	19.6	13.5	-154.38	-253.4	-217.8	430.7	403.5	27.16	15.859			
4,300.0	4,230.0	4,251.9	4,230.0	20.1	13.7	-155.40	-253.9	-218.3	449.3	421.8	27.59	16.288			
4,400.0	4,327.8	4,349.6	4,327.8	20.7	13.9	-156.46	-253.9	-218.3	468.5	440.5	28.01	16.728			
4,500.0	4,425.6	4,447.4	4,425.6	21.3	14.1	-157.44	-253.9	-218.3	487.8	459.4	28.43	17.157			
4,600.0	4,523.4	4,545.2	4,523.4	21.8	14.3	-158.34	-253.9	-218.3	507.3	478.4	28.87	17.573			
4,700.0	4,621.2	4,643.0	4,621.2	22.4	14.5	-159.18	-253.9	-218.3	526.8	497.5	29.31	17.974			
4,800.0	4,718.9	4,740.8	4,718.9	23.0	14.7	-159.96	-253.9	-218.3	546.5	516.7	29.76	18.362			
4,900.0	4,816.7	4,838.6	4,816.7	23.5	14.9	-160.68	-253.9	-218.3	566.2	536.0	30.22	18.737			
5,000.0	4,914.5	4,936.4	4,914.5	24.1	15.1	-161.35	-253.9	-218.3	586.1	555.4	30.69	19.098			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W - Niles Miller 20T-221 - Wellbore #1 - Plan #1 (12-01-15)														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		
5,088.2	5,000.7	5,022.6	5,000.7	24.6	15.3	-161.91	-253.9	-218.3	603.6	572.5	31.10	19.407			
5,100.0	5,012.3	5,034.2	5,012.3	24.7	15.3	-162.00	-253.9	-218.3	605.9	574.8	31.16	19.445			
5,200.0	5,110.5	5,132.4	5,110.5	25.1	15.5	-162.64	-253.9	-218.3	623.9	592.3	31.61	19.735			
5,300.0	5,209.3	5,231.2	5,209.3	25.4	15.7	-163.14	-253.9	-218.3	638.6	606.5	32.05	19.927			
5,400.0	5,308.6	5,330.5	5,308.6	25.7	15.9	-163.51	-253.9	-218.3	650.0	617.5	32.45	20.028			
5,500.0	5,408.3	5,430.1	5,408.3	25.9	16.1	-163.76	-253.9	-218.3	658.1	625.2	32.83	20.043			
5,600.0	5,508.1	5,530.0	5,508.1	26.1	16.4	-163.91	-253.9	-218.3	662.8	629.7	33.18	19.976			
5,691.9	5,600.0	5,621.8	5,600.0	26.3	16.6	89.99	-253.9	-218.3	664.2	630.9	33.34	19.923			
5,700.0	5,608.1	5,630.0	5,608.1	26.3	16.6	89.99	-253.9	-218.3	664.2	630.9	33.38	19.902			
5,800.0	5,708.1	5,730.0	5,708.1	26.4	16.8	89.99	-253.9	-218.3	664.2	630.4	33.81	19.648			
5,900.0	5,808.1	5,830.0	5,808.1	26.6	17.0	89.99	-253.9	-218.3	664.2	630.0	34.24	19.399			
6,000.0	5,908.1	5,930.0	5,908.1	26.7	17.2	89.99	-253.9	-218.3	664.2	629.6	34.68	19.154			
6,100.0	6,008.1	6,030.0	6,008.1	26.8	17.5	89.99	-253.9	-218.3	664.2	629.1	35.12	18.914			
6,200.0	6,108.1	6,130.0	6,108.1	27.0	17.7	89.99	-253.9	-218.3	664.2	628.7	35.56	18.678			
6,300.0	6,208.1	6,230.0	6,208.1	27.2	17.9	89.99	-253.9	-218.3	664.2	628.2	36.01	18.446			
6,400.0	6,308.1	6,330.0	6,308.1	27.3	18.1	89.99	-253.9	-218.3	664.2	627.8	36.46	18.219			
6,500.0	6,408.1	6,430.0	6,408.1	27.5	18.4	89.99	-253.9	-218.3	664.2	627.3	36.91	17.996			
6,557.3	6,465.4	6,487.3	6,465.4	27.6	18.5	89.99	-253.9	-218.3	664.2	627.1	37.17	17.870			
6,600.0	6,508.1	6,530.0	6,508.1	27.6	18.6	88.99	-252.6	-218.3	664.2	626.8	37.47	17.726			
6,650.0	6,557.9	6,579.9	6,557.9	27.7	18.7	88.98	-248.1	-218.3	664.2	626.5	37.64	17.645			
6,700.0	6,607.3	6,629.9	6,607.2	27.7	18.8	88.98	-240.3	-218.3	664.0	626.2	37.77	17.580			
6,750.0	6,656.1	6,679.9	6,656.0	27.8	18.8	88.98	-229.3	-218.3	663.8	626.0	37.87	17.530			
6,800.0	6,704.1	6,729.9	6,703.9	27.8	18.9	88.99	-215.1	-218.3	663.6	625.6	37.94	17.492			
6,850.0	6,751.0	6,779.8	6,750.7	27.8	18.9	89.00	-197.8	-218.3	663.3	625.3	37.98	17.462			
6,900.0	6,796.7	6,829.8	6,796.4	27.8	18.9	89.02	-177.5	-218.3	662.9	624.9	38.02	17.437			
6,950.0	6,841.0	6,879.7	6,840.6	27.8	18.9	89.04	-154.3	-218.3	662.5	624.5	38.05	17.413			
7,000.0	6,883.7	6,929.6	6,883.1	27.8	18.9	89.06	-128.3	-218.3	662.1	624.0	38.09	17.383			
7,050.0	6,924.7	6,979.5	6,923.9	27.8	18.9	89.09	-99.5	-218.3	661.6	623.4	38.14	17.344			
7,100.0	6,963.6	7,029.5	6,962.7	27.8	18.9	89.12	-68.1	-218.3	661.0	622.8	38.23	17.290			
7,150.0	7,000.4	7,079.4	6,999.4	27.8	18.9	89.16	-34.3	-218.3	660.4	622.0	38.36	17.215			
7,200.0	7,034.9	7,129.3	7,033.8	27.8	18.9	89.20	1.8	-218.3	659.8	621.2	38.55	17.115			
7,250.0	7,067.0	7,179.2	7,065.8	27.8	18.9	89.24	40.1	-218.3	659.1	620.3	38.80	16.985			
7,300.0	7,096.5	7,229.1	7,095.1	27.8	19.0	89.29	80.5	-218.3	658.4	619.2	39.14	16.822			
7,350.0	7,123.3	7,278.9	7,121.8	27.8	19.1	89.34	122.6	-218.3	657.6	618.1	39.56	16.624			
7,400.0	7,147.3	7,328.8	7,145.7	27.9	19.3	89.39	166.4	-218.3	656.9	616.8	40.08	16.389			
7,450.0	7,168.4	7,378.7	7,166.7	27.9	19.7	89.44	211.6	-218.3	656.1	615.4	40.70	16.120			
7,500.0	7,186.4	7,428.6	7,184.6	28.0	20.1	89.50	258.1	-218.4	655.3	613.8	41.42	15.819			
7,550.0	7,201.4	7,478.4	7,199.5	28.2	20.5	89.56	305.7	-218.4	654.4	612.2	42.25	15.489			
7,600.0	7,213.2	7,528.3	7,211.3	28.4	21.0	89.62	354.2	-218.4	653.6	610.4	43.18	15.135			
7,650.0	7,221.8	7,578.1	7,219.9	28.6	21.6	89.68	403.3	-218.4	652.7	608.5	44.21	14.763			
7,700.0	7,227.2	7,628.0	7,225.2	28.9	22.2	89.75	452.8	-218.4	651.8	606.5	45.33	14.379			
7,750.0	7,229.3	7,677.9	7,227.3	29.3	22.8	89.81	502.6	-218.4	651.0	604.4	46.54	13.988			
7,765.7	7,229.3	7,693.5	7,227.3	29.4	23.0	89.83	518.3	-218.4	650.7	603.7	46.93	13.865			
7,800.0	7,228.9	7,727.8	7,226.9	29.7	23.5	89.83	552.6	-218.4	650.1	602.2	47.83	13.590			
7,900.0	7,227.8	7,827.8	7,225.5	30.6	25.0	89.81	652.6	-218.4	648.3	597.7	50.62	12.807			
8,000.0	7,226.7	7,927.8	7,224.2	31.8	26.5	89.79	752.5	-218.4	646.6	592.9	53.68	12.045			
8,100.0	7,225.6	8,027.8	7,222.9	33.1	28.2	89.77	852.5	-218.4	644.8	587.8	56.95	11.322			
8,200.0	7,224.5	8,127.8	7,221.6	34.5	30.0	89.74	952.5	-218.5	643.0	582.6	60.41	10.644			
8,300.0	7,223.4	8,227.7	7,220.2	36.1	31.8	89.72	1,052.5	-218.5	641.3	577.3	64.03	10.016			
8,400.0	7,222.3	8,327.7	7,218.9	37.7	33.7	89.70	1,152.4	-218.5	639.5	571.8	67.77	9.436			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W - Niles Miller 20T-221 - Wellbore #1 - Plan #1 (12-01-15)														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		
8,500.0	7,221.2	8,427.7	7,217.6	39.5	35.7	89.68	1,252.4	-218.5	637.8	566.1	71.63	8.904			
8,600.0	7,220.1	8,527.7	7,216.3	41.3	37.7	89.66	1,352.4	-218.5	636.0	560.4	75.58	8.416			
8,700.0	7,219.0	8,627.7	7,214.9	43.1	39.7	89.64	1,452.4	-218.5	634.3	554.7	79.60	7.968			
8,800.0	7,217.9	8,727.7	7,213.6	45.0	41.8	89.62	1,552.3	-218.6	632.5	548.8	83.70	7.557			
8,900.0	7,216.8	8,827.6	7,212.3	46.9	43.9	89.60	1,652.3	-218.6	630.7	542.9	87.85	7.180			
9,000.0	7,215.7	8,927.6	7,210.9	48.9	46.0	89.57	1,752.3	-218.6	629.0	536.9	92.06	6.833			
9,100.0	7,214.7	9,027.6	7,209.6	50.9	48.1	89.55	1,852.3	-218.6	627.2	530.9	96.30	6.513			
9,200.0	7,213.6	9,127.6	7,208.3	52.9	50.3	89.53	1,952.2	-218.6	625.5	524.9	100.59	6.218			
9,300.0	7,212.5	9,227.6	7,207.0	55.0	52.5	89.51	2,052.2	-218.6	623.7	518.8	104.91	5.945			
9,400.0	7,211.4	9,327.6	7,205.6	57.1	54.7	89.48	2,152.2	-218.6	622.0	512.7	109.26	5.693			
9,500.0	7,210.3	9,427.5	7,204.3	59.2	56.9	89.46	2,252.2	-218.7	620.2	506.6	113.63	5.458			
9,600.0	7,209.2	9,527.5	7,203.0	61.3	59.1	89.44	2,352.1	-218.7	618.5	500.4	118.03	5.240			
9,700.0	7,208.1	9,627.5	7,201.7	63.4	61.3	89.42	2,452.1	-218.7	616.7	494.3	122.45	5.036			
9,800.0	7,207.0	9,727.5	7,200.3	65.6	63.5	89.39	2,552.1	-218.7	614.9	488.1	126.89	4.846			
9,900.0	7,205.9	9,827.5	7,199.0	67.7	65.8	89.37	2,652.1	-218.7	613.2	481.9	131.34	4.669			
10,000.0	7,204.8	9,927.5	7,197.7	69.9	68.0	89.35	2,752.0	-218.7	611.4	475.6	135.81	4.502			
10,100.0	7,203.7	10,027.5	7,196.4	72.1	70.2	89.33	2,852.0	-218.8	609.7	469.4	140.29	4.346			
10,200.0	7,202.6	10,127.4	7,195.0	74.3	72.5	89.30	2,952.0	-218.8	607.9	463.1	144.79	4.199			
10,300.0	7,201.5	10,227.4	7,193.7	76.4	74.8	89.28	3,052.0	-218.8	606.2	456.9	149.30	4.060			
10,386.9	7,200.5	10,314.3	7,192.6	78.4	76.7	89.26	3,138.9	-218.8	604.6	451.4	153.22	3.946			
10,400.0	7,200.4	10,327.4	7,192.4	78.6	77.0	89.25	3,151.9	-218.8	604.4	450.6	153.88	3.928			
10,437.2	7,199.9	10,364.6	7,191.9	79.4	77.9	89.24	3,189.2	-218.8	604.2	448.5	155.68	3.881			
10,500.0	7,199.3	10,427.4	7,191.1	80.6	79.3	89.21	3,251.9	-218.8	604.9	446.2	158.66	3.812			
10,582.1	7,198.4	10,509.4	7,190.0	82.2	81.2	89.18	3,333.9	-218.8	607.9	445.4	162.49	3.741			
10,600.0	7,198.2	10,527.3	7,189.7	82.6	81.6	89.17	3,351.8	-218.8	608.8	445.5	163.28	3.728			
10,700.0	7,197.1	10,627.2	7,188.4	84.8	83.9	89.16	3,451.7	-218.9	613.8	446.0	167.85	3.657			
10,800.0	7,196.0	10,727.1	7,187.1	87.1	86.1	89.14	3,551.6	-218.9	618.9	446.5	172.42	3.589			
10,900.0	7,194.9	10,826.9	7,185.8	89.4	88.4	89.13	3,651.4	-218.9	623.9	446.9	177.00	3.525			
11,000.0	7,193.8	10,926.8	7,184.4	91.7	90.7	89.12	3,751.3	-218.9	629.0	447.4	181.58	3.464			
11,100.0	7,192.7	11,026.7	7,183.1	94.0	93.0	89.10	3,851.2	-218.9	634.0	447.9	186.17	3.406			
11,200.0	7,191.6	11,126.6	7,181.8	96.2	95.3	89.09	3,951.0	-218.9	639.1	448.3	190.77	3.350			
11,300.0	7,190.5	11,226.4	7,180.5	98.5	97.6	89.08	4,050.9	-218.9	644.1	448.8	195.37	3.297			
11,400.0	7,189.4	11,326.3	7,179.1	100.8	99.9	89.06	4,150.7	-219.0	649.2	449.2	199.98	3.246			
11,500.0	7,188.3	11,426.2	7,177.8	103.1	102.2	89.05	4,250.6	-219.0	654.3	449.7	204.59	3.198			
11,600.0	7,187.2	11,526.0	7,176.5	105.5	104.5	89.04	4,350.5	-219.0	659.3	450.1	209.20	3.152			
11,708.1	7,186.0	11,634.0	7,175.0	107.9	107.0	89.02	4,458.5	-219.0	664.8	450.6	214.20	3.104 SF			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W - Niles Miller 20T-301 - Wellbore #1 - Plan #2 (2-5-16)														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	-1.15	15.0	-0.3	15.0	15.0	0.00	N/A			
100.0	100.0	100.0	100.0	0.1	0.1	-1.15	15.0	-0.3	15.0	14.7	0.27	54.601			
200.0	200.0	200.0	200.0	0.4	0.4	-1.15	15.0	-0.3	15.0	14.2	0.82	18.200			
300.0	300.0	300.0	300.0	0.7	0.7	-1.15	15.0	-0.3	15.0	13.6	1.37	10.920			
400.0	400.0	400.0	400.0	1.0	1.0	-1.15	15.0	-0.3	15.0	13.1	1.92	7.800			
500.0	500.0	500.0	500.0	1.2	1.2	-1.15	15.0	-0.3	15.0	12.5	2.47	6.067			
600.0	600.0	600.0	600.0	1.5	1.5	-1.15	15.0	-0.3	15.0	12.0	3.02	4.964 CC			
700.0	700.0	700.0	700.0	1.8	1.8	109.62	15.0	-0.3	15.4	11.8	3.55	4.333 ES			
800.0	799.9	799.9	799.9	2.0	2.1	122.06	15.0	-0.3	17.1	13.0	4.07	4.201			
900.0	899.7	900.1	900.1	2.3	2.3	135.17	14.4	-1.5	20.2	15.6	4.58	4.412			
1,000.0	999.3	1,000.5	1,000.4	2.6	2.6	145.47	12.6	-5.0	23.8	18.8	5.08	4.690			
1,100.0	1,098.6	1,101.0	1,100.7	2.9	2.8	153.83	9.6	-10.9	27.8	22.2	5.60	4.975			
1,200.0	1,197.5	1,201.6	1,200.9	3.2	3.1	160.86	5.5	-19.1	32.1	26.0	6.11	5.257			
1,300.0	1,296.1	1,302.3	1,300.9	3.6	3.4	166.93	0.1	-29.7	36.7	30.1	6.63	5.533			
1,405.0	1,399.0	1,408.2	1,405.6	4.1	3.7	172.57	-6.9	-43.4	41.8	34.6	7.19	5.812			
1,500.0	1,492.0	1,503.1	1,499.3	4.6	4.1	176.87	-13.8	-56.9	46.5	38.8	7.72	6.023			
1,600.0	1,589.7	1,603.0	1,597.9	5.1	4.5	-179.47	-21.0	-71.2	51.7	43.4	8.31	6.225			
1,700.0	1,687.5	1,702.8	1,696.4	5.6	4.9	-176.49	-28.2	-85.5	57.1	48.2	8.91	6.404			
1,800.0	1,785.3	1,802.6	1,794.9	6.1	5.3	-174.03	-35.5	-99.7	62.6	53.0	9.54	6.558			
1,900.0	1,883.1	1,902.4	1,893.4	6.7	5.7	-171.96	-42.7	-114.0	68.2	58.0	10.19	6.689			
2,000.0	1,980.9	2,002.2	1,992.0	7.2	6.2	-170.22	-49.9	-128.3	73.8	63.0	10.85	6.801			
2,100.0	2,078.7	2,102.0	2,090.5	7.7	6.6	-168.72	-57.2	-142.5	79.5	68.0	11.53	6.896			
2,200.0	2,176.5	2,201.8	2,189.0	8.3	7.0	-167.42	-64.4	-156.8	85.3	73.1	12.23	6.977			
2,300.0	2,274.3	2,301.7	2,287.5	8.8	7.5	-166.29	-71.7	-171.1	91.1	78.2	12.93	7.046			
2,400.0	2,372.0	2,401.5	2,386.1	9.4	7.9	-165.29	-78.9	-185.3	97.0	83.3	13.65	7.105			
2,500.0	2,469.8	2,501.3	2,484.6	10.0	8.4	-164.41	-86.1	-199.6	102.8	88.4	14.37	7.155			
2,600.0	2,567.6	2,601.1	2,583.1	10.5	8.8	-163.62	-93.4	-213.9	108.7	93.6	15.10	7.199			
2,700.0	2,665.4	2,700.9	2,681.7	11.1	9.3	-162.92	-100.6	-228.1	114.6	98.8	15.84	7.237			
2,800.0	2,763.2	2,800.7	2,780.2	11.6	9.7	-162.28	-107.9	-242.4	120.5	103.9	16.58	7.271			
2,900.0	2,861.0	2,900.6	2,878.7	12.2	10.2	-161.70	-115.1	-256.6	126.5	109.1	17.32	7.300			
3,000.0	2,958.8	3,000.4	2,977.2	12.8	10.7	-161.18	-122.3	-270.9	132.4	114.3	18.07	7.325			
3,100.0	3,056.6	3,100.2	3,075.8	13.3	11.1	-160.70	-129.6	-285.2	138.4	119.5	18.83	7.348			
3,200.0	3,154.3	3,200.0	3,174.3	13.9	11.6	-160.26	-136.8	-299.4	144.3	124.7	19.59	7.368			
3,300.0	3,252.1	3,299.8	3,272.8	14.5	12.0	-159.85	-144.1	-313.7	150.3	129.9	20.35	7.386			
3,400.0	3,349.9	3,399.6	3,371.3	15.0	12.5	-159.48	-151.3	-328.0	156.3	135.2	21.11	7.402			
3,500.0	3,447.7	3,499.5	3,469.9	15.6	13.0	-159.13	-158.5	-342.2	162.3	140.4	21.88	7.417			
3,600.0	3,545.5	3,599.3	3,568.4	16.1	13.4	-158.81	-165.8	-356.5	168.2	145.6	22.65	7.430			
3,700.0	3,643.3	3,699.1	3,666.9	16.7	13.9	-158.51	-173.0	-370.8	174.2	150.8	23.42	7.441			
3,800.0	3,741.1	3,798.9	3,765.4	17.3	14.3	-158.23	-180.3	-385.0	180.2	156.1	24.19	7.452			
3,900.0	3,838.9	3,898.7	3,864.0	17.9	14.8	-157.96	-187.5	-399.3	186.2	161.3	24.96	7.462			
4,000.0	3,936.6	3,998.5	3,962.5	18.4	15.3	-157.72	-194.7	-413.5	192.3	166.5	25.73	7.471			
4,100.0	4,034.4	4,098.4	4,061.0	19.0	15.7	-157.49	-202.0	-427.8	198.3	171.8	26.51	7.479			
4,200.0	4,132.2	4,198.2	4,159.5	19.6	16.2	-157.27	-209.2	-442.1	204.3	177.0	27.29	7.486			
4,300.0	4,230.0	4,298.0	4,258.1	20.1	16.7	-157.07	-216.5	-456.3	210.3	182.2	28.07	7.493			
4,400.0	4,327.8	4,397.8	4,356.6	20.7	17.1	-156.87	-223.7	-470.6	216.3	187.5	28.85	7.499			
4,500.0	4,425.6	4,497.6	4,455.1	21.3	17.6	-156.69	-230.9	-484.9	222.3	192.7	29.63	7.505			
4,600.0	4,523.4	4,596.6	4,552.9	21.8	18.0	-156.52	-238.1	-499.0	228.4	198.0	30.40	7.513			
4,700.0	4,621.2	4,690.1	4,645.4	22.4	18.3	-156.33	-244.0	-510.7	236.1	205.1	31.00	7.615			
4,800.0	4,718.9	4,783.0	4,737.8	23.0	18.6	-156.13	-248.6	-519.6	246.5	215.0	31.50	7.825			
4,900.0	4,816.7	4,875.2	4,829.7	23.5	18.8	-155.95	-251.7	-525.8	259.6	227.7	31.91	8.136			
5,000.0	4,914.5	4,966.6	4,921.0	24.1	19.0	-155.01	-253.5	-529.3	275.5	243.3	32.25	8.544			

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W - Niles Miller 20T-301 - Wellbore #1 - Plan #2 (2-5-16)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,088.2	5,000.7	5,046.3	5,000.7	24.6	19.1	-160.09	-254.0	-530.3	291.8	259.3	32.50	8.978		
5,100.0	5,012.3	5,057.9	5,012.3	24.7	19.2	-160.27	-254.0	-530.3	294.2	261.6	32.54	9.041		
5,200.0	5,110.5	5,156.1	5,110.5	25.1	19.3	-161.55	-254.0	-530.3	312.0	279.2	32.78	9.516		
5,300.0	5,209.3	5,254.9	5,209.3	25.4	19.5	-162.49	-254.0	-530.3	326.6	293.5	33.05	9.880		
5,400.0	5,308.6	5,354.2	5,308.6	25.7	19.7	-163.16	-254.0	-530.3	338.0	304.6	33.34	10.136		
5,500.0	5,408.3	5,453.9	5,408.3	25.9	19.9	-163.61	-254.0	-530.3	346.0	312.4	33.63	10.290		
5,600.0	5,508.1	5,553.7	5,508.1	26.1	20.0	-163.87	-254.0	-530.3	350.8	316.9	33.91	10.346		
5,691.9	5,600.0	5,645.6	5,600.0	26.3	20.2	90.00	-254.0	-530.3	352.2	318.2	33.98	10.366		
5,700.0	5,608.1	5,653.7	5,608.1	26.3	20.2	90.00	-254.0	-530.3	352.2	318.2	34.01	10.356		
5,800.0	5,708.1	5,753.7	5,708.1	26.4	20.4	90.00	-254.0	-530.3	352.2	317.8	34.43	10.229		
5,900.0	5,808.1	5,853.7	5,808.1	26.6	20.6	90.00	-254.0	-530.3	352.2	317.4	34.85	10.105		
6,000.0	5,908.1	5,953.7	5,908.1	26.7	20.8	90.00	-254.0	-530.3	352.2	316.9	35.28	9.983		
6,100.0	6,008.1	6,053.7	6,008.1	26.8	21.0	90.00	-254.0	-530.3	352.2	316.5	35.71	9.863		
6,200.0	6,108.1	6,153.7	6,108.1	27.0	21.2	90.00	-254.0	-530.3	352.2	316.1	36.14	9.745		
6,300.0	6,208.1	6,253.7	6,208.1	27.2	21.3	90.00	-254.0	-530.3	352.2	315.6	36.58	9.629		
6,400.0	6,308.1	6,353.7	6,308.1	27.3	21.5	90.00	-254.0	-530.3	352.2	315.2	37.02	9.514		
6,500.0	6,408.1	6,453.7	6,408.1	27.5	21.7	90.00	-254.0	-530.3	352.2	314.8	37.46	9.402		
6,557.3	6,465.4	6,511.0	6,465.4	27.6	21.8	90.00	-254.0	-530.3	352.2	314.5	37.72	9.339		
6,600.0	6,508.1	6,553.7	6,508.1	27.6	21.9	89.20	-254.0	-530.3	352.2	314.1	38.10	9.245		
6,650.0	6,557.9	6,603.5	6,557.9	27.7	22.0	89.92	-254.0	-530.3	352.2	313.7	38.42	9.167		
6,654.9	6,562.7	6,608.3	6,562.7	27.7	22.0	90.01	-254.0	-530.3	352.2	313.7	38.45	9.159		
6,700.0	6,607.3	6,654.0	6,608.3	27.7	22.1	90.97	-252.7	-530.3	352.2	313.4	38.78	9.082		
6,750.0	6,656.1	6,705.0	6,659.1	27.8	22.2	92.02	-248.0	-530.4	352.2	313.1	39.10	9.007		
6,800.0	6,704.1	6,756.4	6,709.9	27.8	22.3	93.08	-239.9	-530.5	352.2	312.8	39.38	8.943		
6,850.0	6,751.0	6,808.3	6,760.5	27.8	22.3	94.12	-228.2	-530.7	352.2	312.6	39.62	8.890		
6,900.0	6,796.7	6,860.7	6,810.5	27.8	22.4	95.16	-213.0	-531.0	352.2	312.4	39.81	8.847		
6,950.0	6,841.0	6,913.5	6,859.9	27.8	22.4	96.17	-194.2	-531.3	352.2	312.2	39.95	8.815		
7,000.0	6,883.7	6,966.7	6,908.2	27.8	22.4	97.17	-171.9	-531.7	352.1	312.1	40.05	8.792		
7,050.0	6,924.7	7,020.4	6,955.3	27.8	22.4	98.14	-146.0	-532.1	352.0	311.9	40.11	8.775		
7,100.0	6,963.6	7,074.6	7,000.7	27.8	22.4	99.08	-116.6	-532.6	351.9	311.7	40.16	8.763		
7,150.0	7,000.4	7,129.1	7,044.3	27.8	22.4	99.99	-83.9	-533.2	351.7	311.5	40.19	8.750		
7,200.0	7,034.9	7,184.1	7,085.7	27.8	22.4	100.86	-47.8	-533.8	351.4	311.2	40.23	8.734		
7,250.0	7,067.0	7,239.4	7,124.7	27.8	22.4	101.69	-8.5	-534.4	351.1	310.8	40.31	8.710		
7,300.0	7,096.5	7,295.1	7,161.0	27.8	22.4	102.46	33.7	-535.1	350.6	310.2	40.43	8.671		
7,350.0	7,123.3	7,351.2	7,194.3	27.8	22.4	103.19	78.8	-535.9	350.1	309.4	40.64	8.614		
7,400.0	7,147.3	7,407.5	7,224.4	27.9	22.5	103.87	126.4	-536.7	349.4	308.4	40.95	8.532		
7,450.0	7,168.4	7,464.1	7,250.9	27.9	22.6	104.48	176.4	-537.5	348.6	307.2	41.38	8.423		
7,500.0	7,186.4	7,520.9	7,273.8	28.0	22.7	105.03	228.4	-538.4	347.6	305.7	41.96	8.286		
7,550.0	7,201.4	7,578.0	7,292.9	28.2	23.0	105.52	282.1	-539.3	346.6	303.9	42.69	8.119		
7,600.0	7,213.2	7,635.2	7,307.8	28.4	23.3	105.94	337.3	-540.2	345.3	301.8	43.58	7.924		
7,650.0	7,221.8	7,692.4	7,318.7	28.6	23.8	106.28	393.5	-541.2	344.0	299.3	44.65	7.704		
7,700.0	7,227.2	7,749.8	7,325.3	28.9	24.3	106.55	450.4	-542.1	342.4	296.6	45.87	7.465		
7,750.0	7,229.3	7,807.1	7,327.6	29.3	25.0	106.75	507.7	-543.1	340.8	293.5	47.26	7.212		
7,765.7	7,229.3	7,824.6	7,327.4	29.4	25.2	106.80	525.2	-543.4	340.2	292.5	47.71	7.132		
7,800.0	7,228.9	7,858.9	7,326.9	29.7	25.6	106.83	559.5	-543.9	339.1	290.5	48.52	6.988		
7,900.0	7,227.8	7,958.8	7,325.4	30.6	26.9	106.93	659.4	-545.6	335.7	284.5	51.16	6.562		
8,000.0	7,226.7	8,058.8	7,323.9	31.8	28.4	107.03	759.3	-547.3	332.3	278.2	54.09	6.143		
8,100.0	7,225.6	8,158.7	7,322.3	33.1	30.0	107.13	859.2	-549.0	328.9	271.6	57.22	5.747		
8,200.0	7,224.5	8,258.7	7,320.8	34.5	31.7	107.23	959.1	-550.7	325.5	264.9	60.52	5.378		
8,300.0	7,223.4	8,358.6	7,319.3	36.1	33.5	107.34	1,059.0	-552.3	322.1	258.1	63.97	5.035		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	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	7,222.3	8,458.5	7,317.7	37.7	35.3	107.45	1,159.0	-554.0	318.7	251.1	67.53	4.719			
8,500.0	7,221.2	8,558.5	7,316.2	39.5	37.2	107.56	1,258.9	-555.7	315.3	244.1	71.19	4.428			
8,600.0	7,220.1	8,658.4	7,314.6	41.3	39.2	107.67	1,358.8	-557.4	311.9	236.9	74.94	4.161			
8,700.0	7,219.0	8,758.4	7,313.1	43.1	41.1	107.79	1,458.7	-559.1	308.5	229.7	78.76	3.916			
8,800.0	7,217.9	8,858.3	7,311.6	45.0	43.2	107.91	1,558.6	-560.8	305.1	222.4	82.64	3.692			
8,900.0	7,216.8	8,958.3	7,310.0	46.9	45.2	108.03	1,658.5	-562.4	301.7	215.1	86.57	3.485			
9,000.0	7,215.7	9,058.2	7,308.5	48.9	47.3	108.15	1,758.5	-564.1	298.3	207.7	90.55	3.294			
9,100.0	7,214.7	9,158.1	7,307.0	50.9	49.4	108.28	1,858.4	-565.8	294.9	200.3	94.56	3.119			
9,200.0	7,213.6	9,258.1	7,305.4	52.9	51.5	108.41	1,958.3	-567.5	291.5	192.9	98.60	2.957			
9,300.0	7,212.5	9,358.0	7,303.9	55.0	53.7	108.54	2,058.2	-569.2	288.1	185.5	102.67	2.806			
9,400.0	7,211.4	9,458.0	7,302.4	57.1	55.9	108.68	2,158.1	-570.9	284.7	178.0	106.76	2.667			
9,500.0	7,210.3	9,557.9	7,300.8	59.2	58.0	108.82	2,258.0	-572.5	281.4	170.5	110.87	2.538			
9,600.0	7,209.2	9,657.8	7,299.3	61.3	60.2	108.96	2,357.9	-574.2	278.0	163.0	114.99	2.417			
9,700.0	7,208.1	9,757.8	7,297.8	63.4	62.4	109.11	2,457.9	-575.9	274.6	155.5	119.12	2.305			
9,800.0	7,207.0	9,857.7	7,296.2	65.6	64.6	109.26	2,557.8	-577.6	271.2	148.0	123.27	2.200			
9,900.0	7,205.9	9,957.7	7,294.7	67.7	66.8	109.41	2,657.7	-579.3	267.8	140.4	127.42	2.102			
10,000.0	7,204.8	10,057.6	7,293.2	69.9	69.1	109.57	2,757.6	-581.0	264.5	132.9	131.58	2.010			
10,100.0	7,203.7	10,157.5	7,291.6	72.1	71.3	109.73	2,857.5	-582.6	261.1	125.4	135.74	1.924			
10,200.0	7,202.6	10,257.5	7,290.1	74.3	73.6	109.89	2,957.4	-584.3	257.7	117.8	139.90	1.842			
10,300.0	7,201.5	10,357.4	7,288.6	76.4	75.8	110.06	3,057.3	-586.0	254.4	110.3	144.06	1.766			
10,386.9	7,200.5	10,444.3	7,287.2	78.4	77.8	110.22	3,144.2	-587.5	251.4	103.8	147.68	1.703			
10,400.0	7,200.4	10,457.4	7,287.0	78.6	78.1	110.23	3,157.3	-587.7	251.0	102.7	148.32	1.692			
10,489.7	7,199.4	10,547.0	7,285.7	80.4	80.1	110.22	3,246.9	-589.2	249.7	97.1	152.56	1.637			
10,500.0	7,199.3	10,557.3	7,285.5	80.6	80.3	110.20	3,257.2	-589.4	249.7	96.7	153.06	1.632			
10,582.1	7,198.4	10,639.4	7,284.2	82.2	82.2	109.99	3,339.2	-590.7	251.1	94.1	157.00	1.599			
10,600.0	7,198.2	10,657.3	7,284.0	82.6	82.6	109.93	3,357.2	-591.0	251.6	93.9	157.79	1.595			
10,700.0	7,197.1	10,757.3	7,282.4	84.8	84.9	109.58	3,457.1	-592.7	254.7	92.3	162.39	1.568			
10,800.0	7,196.0	10,856.4	7,280.9	87.1	87.1	109.23	3,556.2	-594.4	257.7	90.8	166.97	1.544			
10,900.0	7,194.9	10,949.1	7,279.5	89.4	89.0	108.82	3,648.9	-594.5	262.3	91.0	171.29	1.531 SF			
11,000.0	7,193.8	11,040.7	7,278.1	91.7	90.8	108.22	3,740.4	-591.6	270.0	94.3	175.67	1.537			
11,100.0	7,192.7	11,137.9	7,276.6	94.0	92.9	107.47	3,837.5	-586.2	279.9	99.5	180.41	1.551			
11,200.0	7,191.6	11,237.4	7,275.0	96.2	95.1	106.76	3,936.8	-580.7	289.9	104.6	185.30	1.565			
11,300.0	7,190.5	11,336.8	7,273.5	98.5	97.3	106.09	4,036.0	-575.1	300.0	109.9	190.16	1.578			
11,400.0	7,189.4	11,436.2	7,272.0	100.8	99.5	105.46	4,135.3	-569.5	310.2	115.2	195.00	1.591			
11,500.0	7,188.3	11,535.7	7,270.5	103.1	101.8	104.88	4,234.6	-563.9	320.4	120.5	199.83	1.603			
11,600.0	7,187.2	11,635.1	7,268.9	105.5	104.0	104.33	4,333.8	-558.4	330.6	125.9	204.63	1.615			
11,708.1	7,186.0	11,742.6	7,267.3	107.9	106.4	103.77	4,441.2	-552.3	341.6	131.8	209.82	1.628			



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design														Offset Site Error:	0.0 ft
Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W - Niles Miller 20T-321 - Wellbore #1 - Plan #1 (12-01-15)														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	2.0	2.0	0.0	0.0	-0.71	75.0	-0.9	75.1	75.1	0.00	N/A			
100.0	100.0	102.0	102.0	0.1	0.1	-0.71	75.0	-0.9	75.1	74.8	0.28	267.792			
200.0	200.0	202.0	202.0	0.4	0.4	-0.71	75.0	-0.9	75.1	74.2	0.83	90.446			
300.0	300.0	302.0	302.0	0.7	0.7	-0.71	75.0	-0.9	75.1	73.7	1.38	54.412			
400.0	400.0	402.0	402.0	1.0	1.0	-0.71	75.0	-0.9	75.1	73.1	1.93	38.910			
500.0	500.0	502.0	502.0	1.2	1.2	-0.71	75.0	-0.9	75.1	72.6	2.48	30.282			
600.0	600.0	602.0	602.0	1.5	1.5	-0.71	75.0	-0.9	75.1	72.0	3.03	24.787 CC			
700.0	700.0	702.0	702.0	1.8	1.8	106.30	75.0	-0.9	75.4	71.9	3.56	21.198 ES			
800.0	799.9	801.9	801.9	2.0	2.1	109.10	75.0	-0.9	76.6	72.5	4.08	18.784			
900.0	899.7	901.7	901.7	2.3	2.3	113.54	75.0	-0.9	79.0	74.4	4.62	17.114			
1,000.0	999.3	1,001.3	1,001.3	2.6	2.6	119.27	75.0	-0.9	83.1	77.9	5.17	16.069			
1,100.0	1,098.6	1,100.6	1,100.6	2.9	2.9	125.74	75.0	-0.9	89.4	83.7	5.74	15.584			
1,200.0	1,197.5	1,199.5	1,199.5	3.2	3.2	132.39	75.0	-0.9	98.6	92.2	6.32	15.604			
1,300.0	1,296.1	1,298.1	1,298.1	3.6	3.4	138.71	75.0	-0.9	110.7	103.9	6.89	16.066			
1,405.0	1,399.0	1,401.0	1,401.0	4.1	3.7	144.66	75.0	-0.9	127.0	119.5	7.49	16.948			
1,500.0	1,492.0	1,494.0	1,494.0	4.6	4.0	149.22	75.0	-0.9	143.8	135.8	8.03	17.898			
1,600.0	1,589.7	1,591.7	1,591.7	5.1	4.2	152.98	75.0	-0.9	162.2	153.6	8.60	18.865			
1,700.0	1,687.5	1,691.0	1,691.0	5.6	4.5	156.35	74.0	-0.6	180.8	171.7	9.13	19.807			
1,800.0	1,785.3	1,790.3	1,790.2	6.1	4.7	159.78	70.6	0.6	199.1	189.5	9.62	20.701			
1,900.0	1,883.1	1,889.3	1,889.0	6.7	4.9	163.29	64.7	2.6	217.3	207.2	10.10	21.510			
2,000.0	1,980.9	1,987.8	1,987.2	7.2	5.1	166.84	56.4	5.4	235.8	225.2	10.60	22.244			
2,100.0	2,078.7	2,085.2	2,084.0	7.7	5.4	170.23	46.7	8.7	254.7	243.6	11.11	22.926			
2,200.0	2,176.5	2,182.3	2,180.5	8.3	5.6	173.15	36.9	12.0	274.5	262.8	11.65	23.564			
2,300.0	2,274.3	2,279.4	2,277.1	8.8	5.9	175.68	27.1	15.4	294.8	282.6	12.21	24.151			
2,400.0	2,372.0	2,376.5	2,373.7	9.4	6.2	177.88	17.3	18.7	315.6	302.8	12.78	24.688			
2,500.0	2,469.8	2,473.7	2,470.2	10.0	6.5	179.81	7.5	22.0	336.8	323.4	13.38	25.175			
2,600.0	2,567.6	2,570.8	2,566.8	10.5	6.8	-178.48	-2.3	25.3	358.3	344.3	13.99	25.616			
2,700.0	2,665.4	2,667.9	2,663.4	11.1	7.1	-176.97	-12.1	28.7	380.1	365.5	14.61	26.016			
2,800.0	2,763.2	2,765.1	2,760.0	11.6	7.4	-175.62	-21.9	32.0	402.2	386.9	15.25	26.378			
2,900.0	2,861.0	2,862.2	2,856.5	12.2	7.7	-174.41	-31.7	35.3	424.4	408.5	15.89	26.706			
3,000.0	2,958.8	2,959.3	2,953.1	12.8	8.0	-173.33	-41.5	38.6	446.8	430.2	16.54	27.004			
3,100.0	3,056.6	3,056.4	3,049.7	13.3	8.3	-172.34	-51.3	42.0	469.3	452.1	17.20	27.276			
3,200.0	3,154.3	3,153.6	3,146.3	13.9	8.6	-171.45	-61.1	45.3	491.9	474.0	17.87	27.525			
3,300.0	3,252.1	3,250.7	3,242.8	14.5	9.0	-170.63	-70.9	48.6	514.7	496.1	18.55	27.752			
3,400.0	3,349.9	3,347.8	3,339.4	15.0	9.3	-169.88	-80.7	52.0	537.5	518.3	19.22	27.961			
3,500.0	3,447.7	3,444.9	3,436.0	15.6	9.6	-169.19	-90.5	55.3	560.4	540.5	19.91	28.153			
3,600.0	3,545.5	3,542.1	3,532.6	16.1	10.0	-168.56	-100.3	58.6	583.4	562.8	20.59	28.330			
3,700.0	3,643.3	3,639.2	3,629.1	16.7	10.3	-167.97	-110.1	61.9	606.5	585.2	21.28	28.494			
3,800.0	3,741.1	3,736.3	3,725.7	17.3	10.6	-167.43	-119.9	65.3	629.6	607.6	21.98	28.646			
3,900.0	3,838.9	3,833.4	3,822.3	17.9	11.0	-166.93	-129.7	68.6	652.7	630.1	22.67	28.787			
4,000.0	3,936.6	3,930.6	3,918.9	18.4	11.3	-166.46	-139.5	71.9	675.9	652.6	23.37	28.919			
4,100.0	4,034.4	4,027.7	4,015.4	19.0	11.6	-166.02	-149.3	75.2	699.2	675.1	24.08	29.041			
4,200.0	4,132.2	4,124.8	4,112.0	19.6	12.0	-165.61	-159.1	78.6	722.5	697.7	24.78	29.156			
4,300.0	4,230.0	4,221.9	4,208.6	20.1	12.3	-165.22	-168.9	81.9	745.8	720.3	25.48	29.263			
4,400.0	4,327.8	4,319.1	4,305.1	20.7	12.7	-164.86	-178.7	85.2	769.1	742.9	26.19	29.364			
4,500.0	4,425.6	4,416.2	4,401.7	21.3	13.0	-164.52	-188.5	88.6	792.5	765.6	26.90	29.459			
4,600.0	4,523.4	4,513.3	4,498.3	21.8	13.4	-164.20	-198.3	91.9	815.9	788.3	27.61	29.548			
4,700.0	4,621.2	4,610.4	4,594.9	22.4	13.7	-163.90	-208.1	95.2	839.3	811.0	28.32	29.632			
4,800.0	4,718.9	4,707.6	4,691.4	23.0	14.1	-163.61	-217.9	98.5	862.7	833.7	29.04	29.712			
4,900.0	4,816.7	4,804.7	4,788.0	23.5	14.4	-163.34	-227.7	101.9	886.2	856.4	29.75	29.787			
5,000.0	4,914.5	4,901.8	4,884.6	24.1	14.8	-163.08	-237.5	105.2	909.7	879.2	30.47	29.858			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,088.2	5,000.7	4,996.6	4,978.9	24.6	15.1	-162.92	-245.9	108.0	930.0	898.9	31.08	29.918			
5,100.0	5,012.3	5,009.5	4,991.8	24.7	15.1	-162.93	-246.8	108.3	932.6	901.5	31.17	29.922			
5,200.0	5,110.5	5,119.5	5,101.7	25.1	15.4	-163.07	-252.4	110.2	952.4	920.6	31.79	29.957			
5,300.0	5,209.3	5,229.2	5,211.3	25.4	15.6	-163.36	-254.0	110.8	967.6	935.3	32.33	29.928			
5,400.0	5,308.6	5,328.5	5,310.6	25.7	15.8	-163.63	-254.0	110.8	979.0	946.2	32.80	29.851			
5,500.0	5,408.3	5,428.1	5,410.3	25.9	16.0	-163.81	-254.0	110.8	987.1	953.9	33.21	29.720			
5,600.0	5,508.1	5,528.0	5,510.1	26.1	16.3	-163.91	-254.0	110.8	991.9	958.3	33.59	29.529			
5,691.9	5,600.0	5,619.9	5,602.0	26.3	16.4	90.00	-254.0	110.8	993.3	959.5	33.82	29.373			
5,700.0	5,608.1	5,628.0	5,610.1	26.3	16.5	90.00	-254.0	110.8	993.3	959.4	33.85	29.343			
5,800.0	5,708.1	5,728.0	5,710.1	26.4	16.7	90.00	-254.0	110.8	993.3	959.0	34.27	28.987			
5,900.0	5,808.1	5,828.0	5,810.1	26.6	16.9	90.00	-254.0	110.8	993.3	958.6	34.69	28.636			
6,000.0	5,908.1	5,928.0	5,910.1	26.7	17.1	90.00	-254.0	110.8	993.3	958.2	35.11	28.291			
6,100.0	6,008.1	6,028.0	6,010.1	26.8	17.3	90.00	-254.0	110.8	993.3	957.8	35.54	27.951			
6,200.0	6,108.1	6,128.0	6,110.1	27.0	17.5	90.00	-254.0	110.8	993.3	957.3	35.97	27.616			
6,300.0	6,208.1	6,228.0	6,210.1	27.2	17.8	90.00	-254.0	110.8	993.3	956.9	36.40	27.288			
6,400.0	6,308.1	6,328.0	6,310.1	27.3	18.0	90.00	-254.0	110.8	993.3	956.5	36.84	26.964			
6,500.0	6,408.1	6,428.0	6,410.1	27.5	18.2	90.00	-254.0	110.8	993.3	956.0	37.28	26.646			
6,557.3	6,465.4	6,485.3	6,467.4	27.6	18.3	90.00	-254.0	110.8	993.3	955.8	37.53	26.467			
6,600.0	6,508.1	6,528.0	6,510.1	27.6	18.4	89.07	-254.0	110.8	993.3	955.5	37.80	26.277			
6,650.0	6,557.9	6,577.8	6,559.9	27.7	18.6	89.33	-254.0	110.8	993.2	955.2	38.02	26.126			
6,700.0	6,607.3	6,627.9	6,610.0	27.7	18.7	89.70	-252.5	110.8	993.1	954.9	38.21	25.990			
6,750.0	6,656.1	6,678.5	6,660.4	27.8	18.7	90.07	-247.8	110.8	993.0	954.7	38.37	25.878			
6,800.0	6,704.1	6,729.6	6,710.7	27.8	18.8	90.44	-239.6	110.8	992.9	954.4	38.50	25.792			
6,850.0	6,751.0	6,781.0	6,760.9	27.8	18.8	90.82	-228.0	110.8	992.8	954.2	38.59	25.728			
6,900.0	6,796.7	6,832.9	6,810.5	27.8	18.9	91.19	-212.9	110.8	992.6	954.0	38.65	25.681			
6,950.0	6,841.0	6,885.3	6,859.5	27.8	18.9	91.56	-194.3	110.8	992.5	953.8	38.70	25.648			
7,000.0	6,883.7	6,938.1	6,907.4	27.8	18.9	91.92	-172.2	110.8	992.3	953.6	38.73	25.621			
7,050.0	6,924.7	6,991.3	6,954.0	27.8	18.9	92.28	-146.6	110.8	992.1	953.3	38.76	25.593			
7,100.0	6,963.6	7,045.0	6,999.2	27.8	18.9	92.62	-117.5	110.8	991.8	953.0	38.81	25.556			
7,150.0	7,000.4	7,099.1	7,042.5	27.8	18.9	92.96	-85.1	110.8	991.5	952.7	38.88	25.499			
7,200.0	7,034.9	7,153.6	7,083.7	27.8	18.9	93.29	-49.5	110.8	991.2	952.2	39.00	25.413			
7,250.0	7,067.0	7,208.5	7,122.5	27.8	19.0	93.60	-10.7	110.8	990.9	951.7	39.19	25.287			
7,300.0	7,096.5	7,263.7	7,158.7	27.8	19.0	93.89	31.1	110.8	990.5	951.0	39.44	25.113			
7,350.0	7,123.3	7,319.3	7,191.9	27.8	19.2	94.17	75.6	110.8	990.0	950.3	39.79	24.883			
7,400.0	7,147.3	7,375.3	7,222.0	27.9	19.4	94.43	122.8	110.8	989.6	949.3	40.24	24.592			
7,450.0	7,168.4	7,431.5	7,248.7	27.9	19.7	94.67	172.2	110.8	989.0	948.2	40.81	24.238			
7,500.0	7,186.4	7,488.0	7,271.8	28.0	20.0	94.88	223.8	110.8	988.5	947.0	41.49	23.821			
7,550.0	7,201.4	7,544.7	7,291.1	28.2	20.4	95.07	277.1	110.8	987.8	945.5	42.31	23.348			
7,600.0	7,213.2	7,601.6	7,306.4	28.4	20.9	95.24	331.8	110.7	987.1	943.9	43.25	22.823			
7,650.0	7,221.8	7,658.6	7,317.6	28.6	21.5	95.38	387.7	110.7	986.4	942.1	44.32	22.254			
7,700.0	7,227.2	7,715.7	7,324.6	28.9	22.1	95.50	444.4	110.7	985.6	940.1	45.51	21.656			
7,750.0	7,229.3	7,772.9	7,327.4	29.3	22.8	95.59	501.5	110.7	984.8	938.0	46.80	21.041			
7,765.7	7,229.3	7,790.8	7,327.4	29.4	23.0	95.61	519.5	110.7	984.5	937.3	47.23	20.846			
7,800.0	7,228.9	7,825.5	7,326.8	29.7	23.5	95.60	554.1	110.7	983.9	935.8	48.12	20.446			
7,900.0	7,227.8	7,925.5	7,325.2	30.6	24.9	95.58	654.1	110.7	982.1	931.2	50.87	19.306			
8,000.0	7,226.7	8,025.4	7,323.6	31.8	26.4	95.57	754.0	110.7	980.3	926.4	53.88	18.193			
8,100.0	7,225.6	8,125.4	7,322.0	33.1	28.1	95.55	854.0	110.7	978.5	921.4	57.12	17.131			
8,200.0	7,224.5	8,225.4	7,320.4	34.5	29.8	95.53	954.0	110.7	976.7	916.2	60.54	16.133			
8,300.0	7,223.4	8,325.4	7,318.8	36.1	31.6	95.51	1,054.0	110.7	974.9	910.8	64.12	15.205			
8,400.0	7,222.3	8,425.4	7,317.2	37.7	33.5	95.49	1,153.9	110.7	973.2	905.3	67.83	14.346			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W - Niles Miller 20T-321 - Wellbore #1 - Plan #1 (12-01-15)											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)				
8,500.0	7,221.2	8,525.4	7,315.6	39.5	35.4	95.47	1,253.9	110.7	971.4	899.7	71.66	13.556			
8,600.0	7,220.1	8,625.3	7,314.0	41.3	37.4	95.45	1,353.9	110.7	969.6	894.0	75.57	12.830			
8,700.0	7,219.0	8,725.3	7,312.4	43.1	39.4	95.43	1,453.8	110.7	967.8	888.2	79.57	12.163			
8,800.0	7,217.9	8,825.3	7,310.8	45.0	41.5	95.41	1,553.8	110.7	966.0	882.4	83.64	11.550			
8,900.0	7,216.8	8,925.3	7,309.2	46.9	43.6	95.39	1,653.8	110.7	964.2	876.5	87.76	10.986			
9,000.0	7,215.7	9,025.3	7,307.6	48.9	45.7	95.37	1,753.7	110.7	962.4	870.5	91.94	10.468			
9,100.0	7,214.7	9,125.3	7,305.9	50.9	47.8	95.35	1,853.7	110.7	960.6	864.5	96.17	9.989			
9,200.0	7,213.6	9,225.2	7,304.3	52.9	50.0	95.33	1,953.7	110.7	958.9	858.4	100.43	9.548			
9,300.0	7,212.5	9,325.2	7,302.7	55.0	52.1	95.31	2,053.7	110.7	957.1	852.4	104.73	9.139			
9,400.0	7,211.4	9,425.2	7,301.1	57.1	54.3	95.28	2,153.6	110.7	955.3	846.2	109.05	8.760			
9,500.0	7,210.3	9,525.2	7,299.5	59.2	56.5	95.26	2,253.6	110.6	953.5	840.1	113.41	8.408			
9,600.0	7,209.2	9,625.2	7,297.9	61.3	58.7	95.24	2,353.6	110.6	951.7	833.9	117.79	8.080			
9,700.0	7,208.1	9,725.2	7,296.3	63.4	60.9	95.22	2,453.5	110.6	949.9	827.7	122.19	7.775			
9,800.0	7,207.0	9,825.1	7,294.7	65.6	63.2	95.20	2,553.5	110.6	948.1	821.5	126.60	7.489			
9,900.0	7,205.9	9,925.1	7,293.1	67.7	65.4	95.18	2,653.5	110.6	946.4	815.3	131.04	7.222			
10,000.0	7,204.8	10,025.1	7,291.5	69.9	67.6	95.16	2,753.5	110.6	944.6	809.1	135.49	6.971			
10,100.0	7,203.7	10,125.1	7,289.9	72.1	69.9	95.14	2,853.4	110.6	942.8	802.8	139.96	6.736			
10,200.0	7,202.6	10,225.1	7,288.3	74.3	72.1	95.12	2,953.4	110.6	941.0	796.6	144.44	6.515			
10,300.0	7,201.5	10,325.1	7,286.7	76.4	74.4	95.10	3,053.4	110.6	939.2	790.3	148.93	6.306			
10,386.9	7,200.5	10,412.0	7,285.3	78.4	76.4	95.08	3,140.3	110.6	937.7	784.8	152.84	6.135			
10,400.0	7,200.4	10,425.0	7,285.1	78.6	76.7	95.07	3,153.3	110.6	937.5	784.0	153.48	6.108			
10,438.3	7,199.9	10,463.3	7,284.5	79.4	77.5	95.05	3,191.6	110.6	937.2	782.0	155.25	6.037			
10,500.0	7,199.3	10,525.0	7,283.5	80.6	78.9	95.02	3,253.3	110.6	937.9	779.8	158.07	5.933			
10,582.1	7,198.4	10,607.0	7,282.2	82.2	80.8	94.96	3,335.3	110.6	940.8	779.1	161.75	5.816			
10,600.0	7,198.2	10,625.0	7,281.9	82.6	81.2	94.95	3,353.2	110.6	941.7	779.2	162.54	5.794			
10,700.0	7,197.1	10,724.8	7,280.3	84.8	83.5	94.90	3,453.1	110.6	946.7	779.6	167.09	5.666			
10,800.0	7,196.0	10,824.7	7,278.7	87.1	85.7	94.84	3,552.9	110.6	951.7	780.0	171.66	5.544			
10,900.0	7,194.9	10,924.6	7,277.1	89.4	88.0	94.78	3,652.8	110.6	956.7	780.5	176.23	5.429			
11,000.0	7,193.8	11,024.4	7,275.5	91.7	90.3	94.73	3,752.6	110.6	961.7	780.9	180.80	5.319			
11,100.0	7,192.7	11,124.3	7,273.8	94.0	92.6	94.67	3,852.5	110.6	966.7	781.3	185.39	5.214			
11,200.0	7,191.6	11,224.2	7,272.2	96.2	94.9	94.62	3,952.4	110.6	971.7	781.7	189.98	5.115			
11,300.0	7,190.5	11,324.0	7,270.6	98.5	97.2	94.56	4,052.2	110.6	976.7	782.1	194.57	5.020			
11,400.0	7,189.4	11,423.9	7,269.0	100.8	99.5	94.51	4,152.1	110.6	981.7	782.5	199.17	4.929			
11,500.0	7,188.3	11,523.8	7,267.4	103.1	101.8	94.46	4,251.9	110.5	986.7	782.9	203.78	4.842			
11,600.0	7,187.2	11,623.7	7,265.8	105.5	104.1	94.41	4,351.8	110.5	991.7	783.3	208.39	4.759			
11,708.1	7,186.0	11,731.7	7,264.1	107.9	106.4	94.35	4,459.8	110.5	997.1	783.9	213.24	4.676 SF			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
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	1.0	1.0	0.0	0.0	-0.64	60.0	-0.7	60.0	60.0	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-0.64	60.0	-0.7	60.0	59.7	0.28	216.096		
200.0	200.0	201.0	201.0	0.4	0.4	-0.64	60.0	-0.7	60.0	59.1	0.83	72.511		
300.0	300.0	301.0	301.0	0.7	0.7	-0.64	60.0	-0.7	60.0	58.6	1.38	43.564		
400.0	400.0	401.0	401.0	1.0	1.0	-0.64	60.0	-0.7	60.0	58.0	1.93	31.135		
500.0	500.0	501.0	501.0	1.2	1.2	-0.64	60.0	-0.7	60.0	57.5	2.48	24.224		
600.0	600.0	601.0	601.0	1.5	1.5	-0.64	60.0	-0.7	60.0	56.9	3.03	19.824 CC		
700.0	700.0	701.0	701.0	1.8	1.8	106.61	60.0	-0.7	60.3	56.8	3.55	16.972 ES		
800.0	799.9	800.9	800.9	2.0	2.1	110.09	60.0	-0.7	61.6	57.5	4.08	15.108		
900.0	899.7	900.7	900.7	2.3	2.3	115.54	60.0	-0.7	64.1	59.5	4.61	13.900		
1,000.0	999.3	1,000.3	1,000.3	2.6	2.6	122.38	60.0	-0.7	68.6	63.4	5.17	13.273		
1,100.0	1,098.6	1,099.6	1,099.6	2.9	2.9	129.82	60.0	-0.7	75.5	69.8	5.73	13.182 SF		
1,200.0	1,197.5	1,198.5	1,198.5	3.2	3.2	137.09	60.0	-0.7	85.5	79.2	6.30	13.570		
1,300.0	1,296.1	1,297.1	1,297.1	3.6	3.4	143.65	60.0	-0.7	98.6	91.8	6.87	14.365		
1,405.0	1,399.0	1,400.0	1,400.0	4.1	3.7	149.52	60.0	-0.7	115.9	108.4	7.45	15.550		
1,500.0	1,492.0	1,492.3	1,492.3	4.6	3.9	154.28	59.3	0.2	133.7	125.8	7.95	16.810		
1,600.0	1,589.7	1,588.7	1,588.6	5.1	4.2	158.94	57.1	3.0	153.8	145.4	8.45	18.202		
1,700.0	1,687.5	1,684.3	1,684.0	5.6	4.4	163.24	53.5	7.7	175.6	166.6	8.95	19.620		
1,800.0	1,785.3	1,778.8	1,778.2	6.1	4.6	167.21	48.6	14.2	199.1	189.6	9.45	21.056		
1,900.0	1,883.1	1,872.4	1,871.2	6.7	4.9	170.86	42.2	22.5	224.4	214.4	9.97	22.499		
2,000.0	1,980.9	1,965.5	1,963.5	7.2	5.1	174.23	34.6	32.5	251.6	241.1	10.51	23.932		
2,100.0	2,078.7	2,060.6	2,057.6	7.7	5.4	177.11	26.5	43.1	279.9	268.8	11.08	25.267		
2,200.0	2,176.5	2,155.6	2,151.7	8.3	5.8	179.47	18.3	53.8	308.6	297.0	11.66	26.479		
2,300.0	2,274.3	2,250.7	2,245.8	8.8	6.1	-178.57	10.2	64.4	337.8	325.6	12.25	27.576		
2,400.0	2,372.0	2,345.7	2,339.9	9.4	6.4	-176.93	2.0	75.1	367.3	354.5	12.86	28.570		
2,500.0	2,469.8	2,440.8	2,434.0	10.0	6.8	-175.52	-6.1	85.7	397.1	383.6	13.47	29.471		
2,600.0	2,567.6	2,535.8	2,528.1	10.5	7.1	-174.31	-14.3	96.4	427.0	412.9	14.10	30.288		
2,700.0	2,665.4	2,630.9	2,622.2	11.1	7.5	-173.26	-22.4	107.0	457.1	442.4	14.73	31.032		
2,800.0	2,763.2	2,725.9	2,716.3	11.6	7.8	-172.34	-30.6	117.7	487.3	471.9	15.37	31.710		
2,900.0	2,861.0	2,821.0	2,810.4	12.2	8.2	-171.52	-38.7	128.3	517.6	501.6	16.01	32.331		
3,000.0	2,958.8	2,916.1	2,904.5	12.8	8.6	-170.80	-46.9	139.0	548.0	531.3	16.66	32.900		
3,100.0	3,056.6	3,011.1	2,998.6	13.3	8.9	-170.15	-55.0	149.7	578.5	561.2	17.31	33.423		
3,200.0	3,154.3	3,106.2	3,092.7	13.9	9.3	-169.56	-63.2	160.3	609.0	591.0	17.96	33.905		
3,300.0	3,252.1	3,201.2	3,186.8	14.5	9.7	-169.04	-71.3	171.0	639.6	620.9	18.62	34.351		
3,400.0	3,349.9	3,296.3	3,280.9	15.0	10.1	-168.55	-79.5	181.6	670.2	650.9	19.28	34.764		
3,500.0	3,447.7	3,391.3	3,375.0	15.6	10.5	-168.12	-87.6	192.3	700.8	680.9	19.94	35.147		
3,600.0	3,545.5	3,486.4	3,469.1	16.1	10.8	-167.71	-95.8	202.9	731.5	710.9	20.60	35.504		
3,700.0	3,643.3	3,581.4	3,563.2	16.7	11.2	-167.34	-103.9	213.6	762.3	741.0	21.27	35.837		
3,800.0	3,741.1	3,676.5	3,657.3	17.3	11.6	-167.00	-112.1	224.2	793.0	771.1	21.94	36.148		
3,900.0	3,838.9	3,771.5	3,751.4	17.9	12.0	-166.69	-120.2	234.9	823.8	801.2	22.61	36.440		
4,000.0	3,936.6	3,866.6	3,845.5	18.4	12.4	-166.39	-128.3	245.5	854.6	831.3	23.28	36.713		
4,100.0	4,034.4	3,961.6	3,939.6	19.0	12.8	-166.12	-136.5	256.2	885.4	861.5	23.95	36.970		
4,200.0	4,132.2	4,056.7	4,033.7	19.6	13.2	-165.87	-144.6	266.9	916.2	891.6	24.62	37.211		
4,300.0	4,230.0	4,151.7	4,127.8	20.1	13.6	-165.63	-152.8	277.5	947.1	921.8	25.30	37.439		
4,400.0	4,327.8	4,246.8	4,221.9	20.7	14.0	-165.41	-160.9	288.2	978.0	952.0	25.97	37.655		

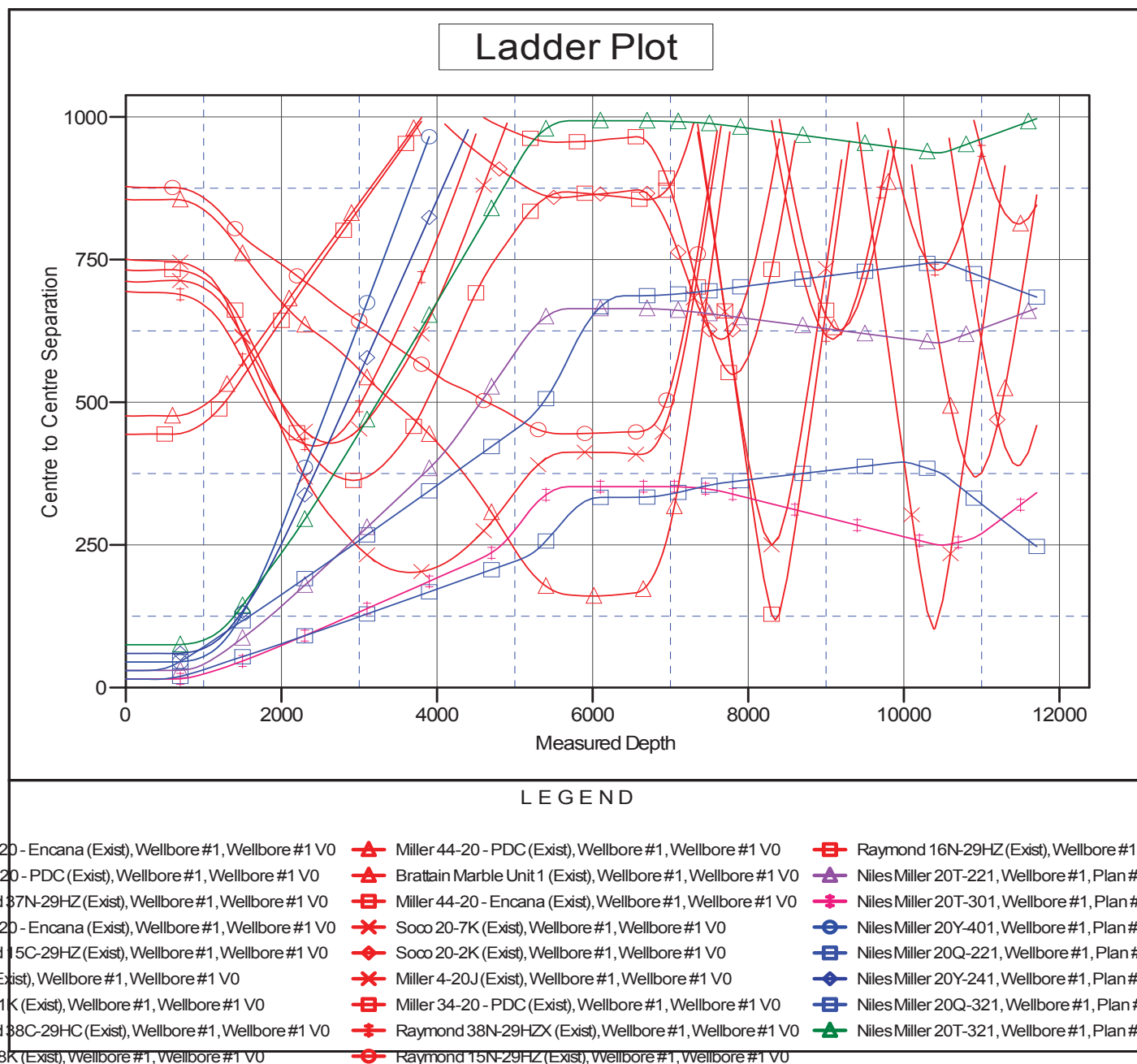
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W - Niles Miller 20Y-401 - Wellbore #1 - Plan #1 (12-01-15)													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	-0.73	45.0	-0.6	45.0	45.0	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-0.73	45.0	-0.6	45.0	44.7	0.28	162.046		
200.0	200.0	201.0	201.0	0.4	0.4	-0.73	45.0	-0.6	45.0	44.1	0.83	54.374		
300.0	300.0	301.0	301.0	0.7	0.7	-0.73	45.0	-0.6	45.0	43.6	1.38	32.668		
400.0	400.0	401.0	401.0	1.0	1.0	-0.73	45.0	-0.6	45.0	43.0	1.93	23.348		
500.0	500.0	501.0	501.0	1.2	1.2	-0.73	45.0	-0.6	45.0	42.5	2.48	18.165		
600.0	600.0	601.0	601.0	1.5	1.5	-0.73	45.0	-0.6	45.0	41.9	3.03	14.865 CC		
700.0	700.0	701.0	701.0	1.8	1.8	106.92	45.0	-0.6	45.3	41.8	3.55	12.753 ES		
800.0	799.9	800.9	800.9	2.0	2.1	111.52	45.0	-0.6	46.6	42.6	4.08	11.441		
900.0	899.7	900.7	900.7	2.3	2.3	118.54	45.0	-0.6	49.4	44.8	4.61	10.711		
1,000.0	999.3	1,000.3	1,000.3	2.6	2.6	126.96	45.0	-0.6	54.4	49.2	5.16	10.532 SF		
1,100.0	1,098.6	1,099.6	1,099.6	2.9	2.9	135.53	45.0	-0.6	62.2	56.5	5.72	10.867		
1,200.0	1,197.5	1,198.5	1,198.5	3.2	3.2	143.30	45.0	-0.6	73.2	66.9	6.28	11.647		
1,300.0	1,296.1	1,296.3	1,296.3	3.6	3.4	150.52	44.5	0.5	87.8	81.0	6.81	12.895		
1,405.0	1,399.0	1,397.4	1,397.3	4.1	3.6	157.64	42.9	4.1	108.1	100.8	7.34	14.734		
1,500.0	1,492.0	1,487.7	1,487.4	4.6	3.9	163.18	40.7	9.4	130.0	122.2	7.82	16.630		
1,600.0	1,589.7	1,581.6	1,581.0	5.1	4.1	167.95	37.4	16.9	155.4	147.1	8.33	18.656		
1,700.0	1,687.5	1,674.3	1,673.1	5.6	4.4	171.91	33.3	26.4	183.1	174.3	8.85	20.685		
1,800.0	1,785.3	1,765.6	1,763.6	6.1	4.7	175.25	28.3	37.8	213.2	203.8	9.39	22.696		
1,900.0	1,883.1	1,855.6	1,852.4	6.7	5.0	178.10	22.6	50.9	245.4	235.5	9.95	24.676		
2,000.0	1,980.9	1,945.9	1,941.1	7.2	5.3	-179.41	16.2	65.9	279.8	269.3	10.52	26.596		
2,100.0	2,078.7	2,038.9	2,032.6	7.7	5.7	-177.33	9.3	81.8	314.9	303.8	11.11	28.351		
2,200.0	2,176.5	2,132.0	2,124.1	8.3	6.0	-175.67	2.4	97.7	350.3	338.6	11.71	29.922		
2,300.0	2,274.3	2,225.1	2,215.5	8.8	6.4	-174.31	-4.5	113.5	385.9	373.6	12.31	31.340		
2,400.0	2,372.0	2,318.2	2,307.0	9.4	6.9	-173.18	-11.4	129.4	421.7	408.8	12.93	32.617		
2,500.0	2,469.8	2,411.3	2,398.4	10.0	7.3	-172.23	-18.3	145.3	457.6	444.1	13.55	33.771		
2,600.0	2,567.6	2,504.3	2,489.9	10.5	7.7	-171.41	-25.1	161.2	493.6	479.4	14.18	34.818		
2,700.0	2,665.4	2,597.4	2,581.4	11.1	8.1	-170.71	-32.0	177.1	529.7	514.9	14.81	35.769		
2,800.0	2,763.2	2,690.5	2,672.8	11.6	8.6	-170.09	-38.9	192.9	565.8	550.4	15.44	36.637		
2,900.0	2,861.0	2,783.6	2,764.3	12.2	9.0	-169.55	-45.8	208.8	602.0	585.9	16.08	37.431		
3,000.0	2,958.8	2,876.7	2,855.7	12.8	9.5	-169.07	-52.7	224.7	638.2	621.5	16.73	38.161		
3,100.0	3,056.6	2,969.7	2,947.2	13.3	9.9	-168.64	-59.6	240.6	674.5	657.1	17.37	38.832		
3,200.0	3,154.3	3,062.8	3,038.6	13.9	10.4	-168.26	-66.4	256.5	710.8	692.8	18.02	39.452		
3,300.0	3,252.1	3,155.9	3,130.1	14.5	10.8	-167.91	-73.3	272.3	747.1	728.4	18.67	40.026		
3,400.0	3,349.9	3,249.0	3,221.6	15.0	11.3	-167.59	-80.2	288.2	783.4	764.1	19.32	40.559		
3,500.0	3,447.7	3,342.1	3,313.0	15.6	11.7	-167.31	-87.1	304.1	819.8	799.8	19.97	41.054		
3,600.0	3,545.5	3,435.1	3,404.5	16.1	12.2	-167.04	-94.0	320.0	856.2	835.6	20.62	41.515		
3,700.0	3,643.3	3,528.2	3,495.9	16.7	12.7	-166.80	-100.9	335.9	892.6	871.3	21.28	41.946		
3,800.0	3,741.1	3,621.3	3,587.4	17.3	13.1	-166.58	-107.7	351.7	929.0	907.0	21.94	42.349		
3,900.0	3,838.9	3,714.4	3,678.8	17.9	13.6	-166.37	-114.6	367.6	965.4	942.8	22.59	42.728		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4968.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

Coordinates are relative to: Niles Miller 20T-241  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.46°



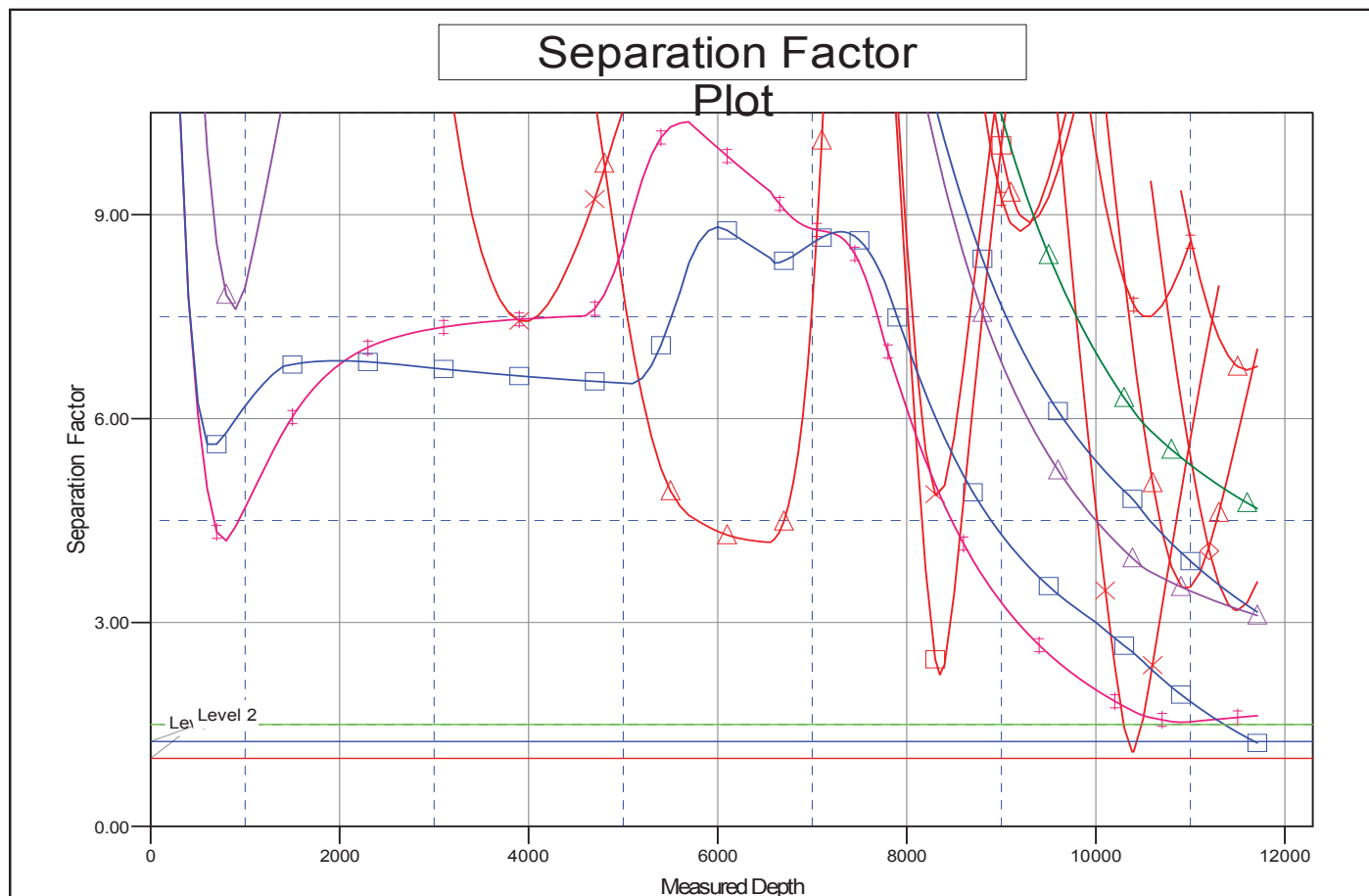
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Niles Miller 20T-241
<b>Project:</b>	SEC.20-T3N-R66W	<b>TVD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Reference Site:</b>	Niles Miller 3N66W20Y Pad Sec.20-T3N-R66W	<b>MD Reference:</b>	WELL @ 4968.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Niles Miller 20T-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (2-5-16)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4968.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

Coordinates are relative to: Niles Miller 20T-241  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.46°



#### LEGEND

-20 - Encana (Exist), Wellbore #1, Wellbore #1 V0	Miller 44-20 - PDC (Exist), Wellbore #1, Wellbore #1 V0	Raymond 16N-29HZ (Exist), Wellbore #1, Wellbore #1 V0
-20 - PDC (Exist), Wellbore #1, Wellbore #1 V0	Brattain Marble Unit 1 (Exist), Wellbore #1, Wellbore #1 V0	Niles Miller 20T-221, Wellbore #1, Plan #1 (Exist)
d 37N-29HZ (Exist), Wellbore #1, Wellbore #1 V0	Miller 44-20 - Encana (Exist), Wellbore #1, Wellbore #1 V0	Niles Miller 20T-301, Wellbore #1, Plan #2 (Exist)
-20 - Encana (Exist), Wellbore #1, Wellbore #1 V0	Sooo 20-7K (Exist), Wellbore #1, Wellbore #1 V0	Niles Miller 20Y-401, Wellbore #1, Plan #1 (Exist)
d 15C-29HZ (Exist), Wellbore #1, Wellbore #1 V0	Sooo 20-2K (Exist), Wellbore #1, Wellbore #1 V0	Niles Miller 20Q-221, Wellbore #1, Plan #1 (Exist)
Exist), Wellbore #1, Wellbore #1 V0	Miller 4-20J (Exist), Wellbore #1, Wellbore #1 V0	Niles Miller 20Y-241, Wellbore #1, Plan #1 (Exist)
-1K (Exist), Wellbore #1, Wellbore #1 V0	Miller 34-20 - PDC (Exist), Wellbore #1, Wellbore #1 V0	Niles Miller 20Q-321, Wellbore #1, Plan #2 (Exist)
d 38C-29HC (Exist), Wellbore #1, Wellbore #1 V0	Raymond 38N-29HZX (Exist), Wellbore #1, Wellbore #1 V0	Niles Miller 20T-321, Wellbore #1, Plan #1 (Exist)
-8K (Exist), Wellbore #1, Wellbore #1 V0	Raymond 15N-29HZ (Exist), Wellbore #1, Wellbore #1 V0	

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