

# PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Ottenhoff 29R-323**

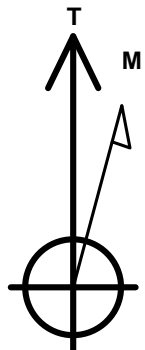
Surface Location: Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W  
North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
Ground Elevation: 4663.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1381166.61	3259734.43	40.375956	-104.567729	

RKB - 23' WELL @ 4686.0ft (RKB - 23')

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 559'FNL & 960'FEL, Sec.29	1.0	0.0	0.0	Point
BHL 2637'FSL & 763'FEL, Sec.32	6727.0	-7359.0	245.5	Point



Azimuths to True North  
Magnetic North: 8.12°

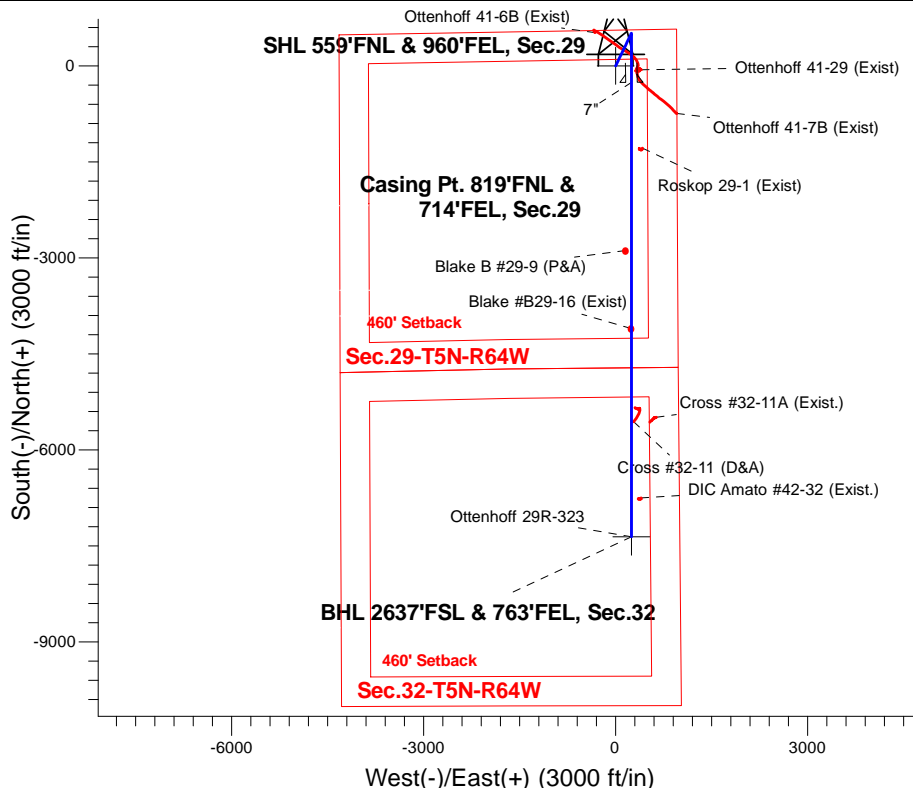
Magnetic Field  
Strength: 52645.0snT  
Dip Angle: 66.90°  
Date: 2/26/2016  
Model: IGRF2010

Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W  
Ottenhoff 29R-323  
Plan #1 (3-15-16)  
15:29, March 17 2016

## ANNOTATIONS

TVD	MD	Annotation
800.0	800.0	KOP - Start Build 1.50
3741.3	3789.1	Start Drop -2.00
6007.7	6059.1	KOP #2 - Start Build 7.50
6771.6	7263.9	Start 7099.4 hold at 7263.9 MD
6727.0	14363.3	TD at 14363.3

South(-)/North(+) (3000 ft/in)

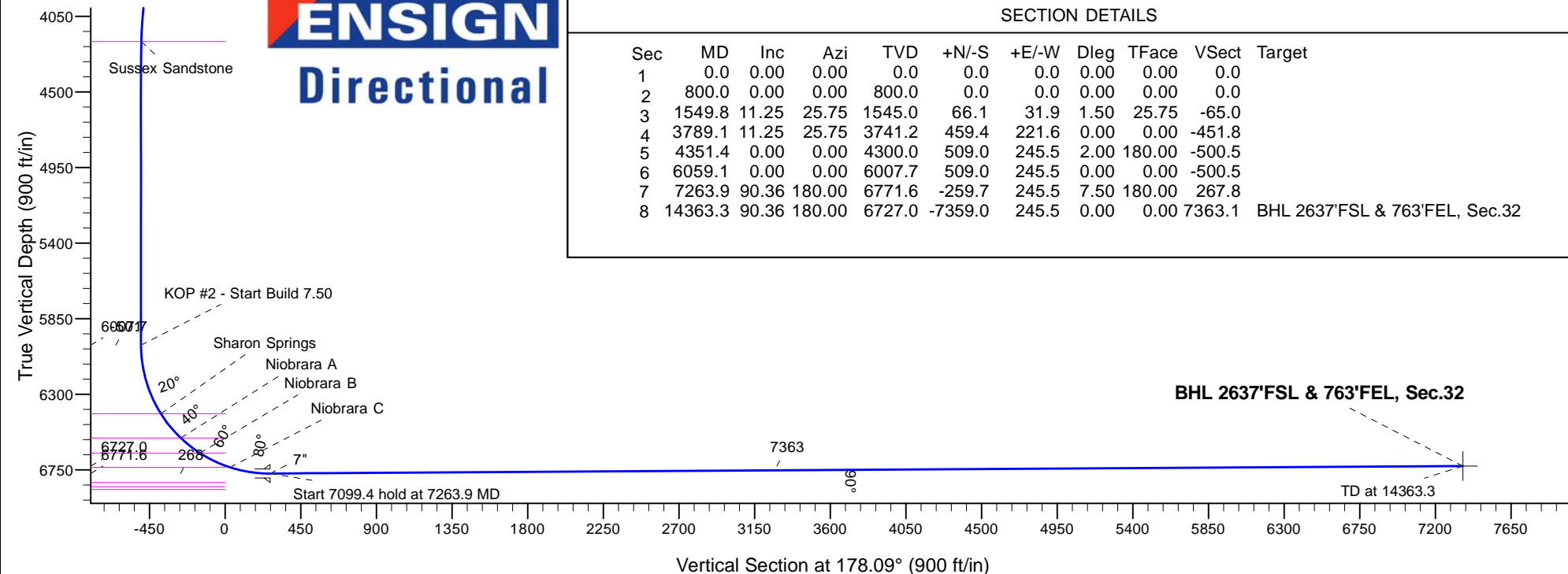


West(-)/East(+) (3000 ft/in)

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1549.8	11.25	25.75	1545.0	66.1	31.9	1.50	25.75	-65.0	
4	3789.1	11.25	25.75	3741.2	459.4	221.6	0.00	0.00	-451.8	
5	4351.4	0.00	0.00	4300.0	509.0	245.5	2.00	180.00	-500.5	
6	6059.1	0.00	0.00	6007.7	509.0	245.5	0.00	0.00	-500.5	
7	7263.9	90.36	180.00	6771.6	-259.7	245.5	7.50	180.00	267.8	
8	14363.3	90.36	180.00	6727.0	-7359.0	245.5	0.00	0.00	7363.1	BHL 2637'FSL & 763'FEL, Sec.32

**ENSIGN**  
**Directional**





# **PETROLEUM DEVELOPMENT CORP DJ Basin**

**SEC.29-T5N-R64W**

**Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W**

**Ottenhoff 29R-323**

**Wellbore #1**

**Plan: Plan #1 (3-15-16)**

## **Standard Planning Report**

**17 March, 2016**

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Project:</b>	SEC.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-15-16)		

<b>Project</b>	SEC.29-T5N-R64W, Weld County, CO		
<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		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W			
Site Position:		Northing:	1,381,166.77 usft	Latitude:	40.375956
From:	Lat/Long	Easting:	3,259,749.48 usft	Longitude:	-104.567675
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.60

Well	Ottenhoff 29R-323					
Well Position	+N/-S	0.0 ft	Northing:	1,381,166.61 usft	Latitude:	40.375956
	+E/-W	-15.0 ft	Easting:	3,259,734.43 usft	Longitude:	-104.567729
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,663.0 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	2/26/2016	8.12	66.90	52,645

<b>Design</b>	Plan #1 (3-15-16)			
<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	178.09

<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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,549.8	11.25	25.75	1,545.0	66.1	31.9	1.50	1.50	0.00	25.75	
3,789.1	11.25	25.75	3,741.2	459.4	221.6	0.00	0.00	0.00	0.00	
4,351.4	0.00	0.00	4,300.0	509.0	245.5	2.00	-2.00	0.00	180.00	
6,059.1	0.00	0.00	6,007.7	509.0	245.5	0.00	0.00	0.00	0.00	
7,263.9	90.36	180.00	6,771.6	-259.7	245.5	7.50	7.50	0.00	180.00	
14,363.3	90.36	180.00	6,727.0	-7,359.0	245.5	0.00	0.00	0.00	0.00	BHL 2637°FSL & 763°I

Database:	US_EDM	Local Co-ordinate Reference:	Well Ottenhoff 29R-323
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 4686.0ft (RKB - 23')
Project:	SEC.29-T5N-R64W	MD Reference:	WELL @ 4686.0ft (RKB - 23')
Site:	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	North Reference:	True
Well:	Ottenhoff 29R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-15-16)		

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 559'FNL & 960'FEL, Sec.29									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 1.50									
900.0	1.50	25.75	900.0	1.2	0.6	-1.2	1.50	1.50	0.00
1,000.0	3.00	25.75	999.9	4.7	2.3	-4.6	1.50	1.50	0.00
1,100.0	4.50	25.75	1,099.7	10.6	5.1	-10.4	1.50	1.50	0.00
1,200.0	6.00	25.75	1,199.3	18.8	9.1	-18.5	1.50	1.50	0.00
1,300.0	7.50	25.75	1,298.6	29.4	14.2	-28.9	1.50	1.50	0.00
1,400.0	9.00	25.75	1,397.5	42.4	20.4	-41.7	1.50	1.50	0.00
1,500.0	10.50	25.75	1,496.1	57.6	27.8	-56.7	1.50	1.50	0.00
1,549.8	11.25	25.75	1,545.0	66.1	31.9	-65.0	1.50	1.50	0.00
1,600.0	11.25	25.75	1,594.2	74.9	36.1	-73.6	0.00	0.00	0.00
1,700.0	11.25	25.75	1,692.3	92.5	44.6	-90.9	0.00	0.00	0.00
1,800.0	11.25	25.75	1,790.4	110.0	53.1	-108.2	0.00	0.00	0.00
1,900.0	11.25	25.75	1,888.5	127.6	61.5	-125.5	0.00	0.00	0.00
2,000.0	11.25	25.75	1,986.5	145.2	70.0	-142.7	0.00	0.00	0.00
2,100.0	11.25	25.75	2,084.6	162.7	78.5	-160.0	0.00	0.00	0.00
2,200.0	11.25	25.75	2,182.7	180.3	87.0	-177.3	0.00	0.00	0.00
2,300.0	11.25	25.75	2,280.8	197.9	95.4	-194.6	0.00	0.00	0.00
2,400.0	11.25	25.75	2,378.9	215.4	103.9	-211.8	0.00	0.00	0.00
2,500.0	11.25	25.75	2,476.9	233.0	112.4	-229.1	0.00	0.00	0.00
2,600.0	11.25	25.75	2,575.0	250.6	120.9	-246.4	0.00	0.00	0.00
2,700.0	11.25	25.75	2,673.1	268.1	129.3	-263.7	0.00	0.00	0.00
2,800.0	11.25	25.75	2,771.2	285.7	137.8	-280.9	0.00	0.00	0.00
2,900.0	11.25	25.75	2,869.3	303.3	146.3	-298.2	0.00	0.00	0.00
3,000.0	11.25	25.75	2,967.3	320.8	154.8	-315.5	0.00	0.00	0.00
3,100.0	11.25	25.75	3,065.4	338.4	163.2	-332.8	0.00	0.00	0.00
3,200.0	11.25	25.75	3,163.5	356.0	171.7	-350.0	0.00	0.00	0.00
3,300.0	11.25	25.75	3,261.6	373.5	180.2	-367.3	0.00	0.00	0.00
3,400.0	11.25	25.75	3,359.7	391.1	188.7	-384.6	0.00	0.00	0.00
3,500.0	11.25	25.75	3,457.7	408.7	197.1	-401.9	0.00	0.00	0.00
3,573.7	11.25	25.75	3,530.0	421.6	203.4	-414.6	0.00	0.00	0.00
Parkman Sandstone									
3,600.0	11.25	25.75	3,555.8	426.2	205.6	-419.1	0.00	0.00	0.00
3,700.0	11.25	25.75	3,653.9	443.8	214.1	-436.4	0.00	0.00	0.00
3,789.1	11.25	25.75	3,741.3	459.5	221.6	-451.8	0.00	0.00	0.00
Start Drop -2.00									
3,800.0	11.03	25.75	3,752.0	461.3	222.6	-453.7	2.01	-2.01	0.00
3,900.0	9.03	25.75	3,850.4	477.0	230.1	-469.1	2.00	-2.00	0.00
4,000.0	7.03	25.75	3,949.5	489.6	236.2	-481.5	2.00	-2.00	0.00
4,100.0	5.03	25.75	4,048.9	499.1	240.7	-490.8	2.00	-2.00	0.00
4,200.0	3.03	25.75	4,148.7	505.4	243.8	-497.0	2.00	-2.00	0.00
4,251.4	2.00	25.75	4,200.0	507.4	244.8	-499.0	2.00	-2.00	0.00

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Project:	SEC.29-T5N-R64W	MD Reference:	WELL @ 4686.0ft (RKB - 23')
Site:	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	North Reference:	True
Well:	Ottenhoff 29R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-15-16)		

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 Sandstone</b>									
4,300.0	1.03	25.75	4,248.6	508.6	245.3	-500.1	2.00	-2.00	0.00
4,351.4	0.00	0.00	4,300.0	509.0	245.5	-500.5	2.00	-2.00	0.00
4,400.0	0.00	0.00	4,348.6	509.0	245.5	-500.5	0.00	0.00	0.00
4,500.0	0.00	0.00	4,448.6	509.0	245.5	-500.5	0.00	0.00	0.00
4,600.0	0.00	0.00	4,548.6	509.0	245.5	-500.5	0.00	0.00	0.00
4,700.0	0.00	0.00	4,648.6	509.0	245.5	-500.5	0.00	0.00	0.00
4,800.0	0.00	0.00	4,748.6	509.0	245.5	-500.5	0.00	0.00	0.00
4,900.0	0.00	0.00	4,848.6	509.0	245.5	-500.5	0.00	0.00	0.00
5,000.0	0.00	0.00	4,948.6	509.0	245.5	-500.5	0.00	0.00	0.00
5,100.0	0.00	0.00	5,048.6	509.0	245.5	-500.5	0.00	0.00	0.00
5,200.0	0.00	0.00	5,148.6	509.0	245.5	-500.5	0.00	0.00	0.00
5,300.0	0.00	0.00	5,248.6	509.0	245.5	-500.5	0.00	0.00	0.00
5,400.0	0.00	0.00	5,348.6	509.0	245.5	-500.5	0.00	0.00	0.00
5,500.0	0.00	0.00	5,448.6	509.0	245.5	-500.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,548.6	509.0	245.5	-500.5	0.00	0.00	0.00
5,700.0	0.00	0.00	5,648.6	509.0	245.5	-500.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,748.6	509.0	245.5	-500.5	0.00	0.00	0.00
5,900.0	0.00	0.00	5,848.6	509.0	245.5	-500.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,948.6	509.0	245.5	-500.5	0.00	0.00	0.00
6,059.1	0.00	0.00	6,007.7	509.0	245.5	-500.5	0.00	0.00	0.00
<b>KOP #2 - Start Build 7.50</b>									
6,100.0	3.07	180.00	6,048.6	507.9	245.5	-499.4	7.50	7.50	0.00
6,200.0	10.57	180.00	6,147.8	496.0	245.5	-487.6	7.50	7.50	0.00
6,300.0	18.07	180.00	6,244.6	471.3	245.5	-462.9	7.50	7.50	0.00
6,400.0	25.57	180.00	6,337.4	434.2	245.5	-425.8	7.50	7.50	0.00
6,488.7	32.22	180.00	6,415.0	391.4	245.5	-382.9	7.50	7.50	0.00
<b>Sharon Springs</b>									
6,500.0	33.07	180.00	6,424.5	385.3	245.5	-376.9	7.50	7.50	0.00
6,600.0	40.57	180.00	6,504.5	325.4	245.5	-317.0	7.50	7.50	0.00
6,676.5	46.30	180.00	6,560.0	272.8	245.5	-264.5	7.50	7.50	0.00
<b>Niobrara A</b>									
6,700.0	48.07	180.00	6,576.0	255.6	245.5	-247.2	7.50	7.50	0.00
6,800.0	55.57	180.00	6,637.8	177.0	245.5	-168.7	7.50	7.50	0.00
6,822.1	57.22	180.00	6,650.0	158.6	245.5	-150.3	7.50	7.50	0.00
<b>Niobrara B</b>									
6,900.0	63.07	180.00	6,688.8	91.1	245.5	-82.8	7.50	7.50	0.00
7,000.0	70.57	180.00	6,728.1	-0.8	245.5	9.0	7.50	7.50	0.00
7,021.6	72.19	180.00	6,735.0	-21.3	245.5	29.4	7.50	7.50	0.00
<b>Niobrara C</b>									
7,100.0	78.07	180.00	6,755.1	-97.0	245.5	105.1	7.50	7.50	0.00
7,200.0	85.57	180.00	6,769.3	-195.9	245.5	204.0	7.50	7.50	0.00
7,263.9	90.36	180.00	6,771.6	-259.7	245.5	267.8	7.50	7.50	0.00
<b>Start 7099.4 hold at 7263.9 MD - 7"</b>									
7,300.0	90.36	180.00	6,771.4	-295.8	245.5	303.9	0.00	0.00	0.00
7,400.0	90.36	180.00	6,770.8	-395.8	245.5	403.8	0.00	0.00	0.00
7,500.0	90.36	180.00	6,770.1	-495.8	245.5	503.8	0.00	0.00	0.00
7,600.0	90.36	180.00	6,769.5	-595.8	245.5	603.7	0.00	0.00	0.00
7,700.0	90.36	180.00	6,768.9	-695.8	245.5	703.6	0.00	0.00	0.00
7,800.0	90.36	180.00	6,768.2	-795.8	245.5	803.6	0.00	0.00	0.00
7,900.0	90.36	180.00	6,767.6	-895.8	245.5	903.5	0.00	0.00	0.00

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Project:</b>	SEC.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-15-16)		

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	90.36	180.00	6,767.0	-995.8	245.5	1,003.5	0.00	0.00	0.00
8,100.0	90.36	180.00	6,766.4	-1,095.8	245.5	1,103.4	0.00	0.00	0.00
8,200.0	90.36	180.00	6,765.7	-1,195.8	245.5	1,203.4	0.00	0.00	0.00
8,300.0	90.36	180.00	6,765.1	-1,295.8	245.5	1,303.3	0.00	0.00	0.00
8,400.0	90.36	180.00	6,764.5	-1,395.8	245.5	1,403.2	0.00	0.00	0.00
8,500.0	90.36	180.00	6,763.8	-1,495.8	245.5	1,503.2	0.00	0.00	0.00
8,600.0	90.36	180.00	6,763.2	-1,595.8	245.5	1,603.1	0.00	0.00	0.00
8,700.0	90.36	180.00	6,762.6	-1,695.8	245.5	1,703.1	0.00	0.00	0.00
8,800.0	90.36	180.00	6,762.0	-1,795.8	245.5	1,803.0	0.00	0.00	0.00
8,900.0	90.36	180.00	6,761.3	-1,895.8	245.5	1,903.0	0.00	0.00	0.00
9,000.0	90.36	180.00	6,760.7	-1,995.8	245.5	2,002.9	0.00	0.00	0.00
9,100.0	90.36	180.00	6,760.1	-2,095.8	245.5	2,102.8	0.00	0.00	0.00
9,200.0	90.36	180.00	6,759.4	-2,195.8	245.5	2,202.8	0.00	0.00	0.00
9,300.0	90.36	180.00	6,758.8	-2,295.8	245.5	2,302.7	0.00	0.00	0.00
9,400.0	90.36	180.00	6,758.2	-2,395.8	245.5	2,402.7	0.00	0.00	0.00
9,500.0	90.36	180.00	6,757.6	-2,495.8	245.5	2,502.6	0.00	0.00	0.00
9,600.0	90.36	180.00	6,756.9	-2,595.8	245.5	2,602.5	0.00	0.00	0.00
9,700.0	90.36	180.00	6,756.3	-2,695.8	245.5	2,702.5	0.00	0.00	0.00
9,800.0	90.36	180.00	6,755.7	-2,795.8	245.5	2,802.4	0.00	0.00	0.00
9,900.0	90.36	180.00	6,755.0	-2,895.8	245.5	2,902.4	0.00	0.00	0.00
10,000.0	90.36	180.00	6,754.4	-2,995.8	245.5	3,002.3	0.00	0.00	0.00
10,100.0	90.36	180.00	6,753.8	-3,095.8	245.5	3,102.3	0.00	0.00	0.00
10,200.0	90.36	180.00	6,753.2	-3,195.8	245.5	3,202.2	0.00	0.00	0.00
10,300.0	90.36	180.00	6,752.5	-3,295.8	245.5	3,302.1	0.00	0.00	0.00
10,400.0	90.36	180.00	6,751.9	-3,395.8	245.5	3,402.1	0.00	0.00	0.00
10,500.0	90.36	180.00	6,751.3	-3,495.8	245.5	3,502.0	0.00	0.00	0.00
10,600.0	90.36	180.00	6,750.6	-3,595.8	245.5	3,602.0	0.00	0.00	0.00
10,700.0	90.36	180.00	6,750.0	-3,695.8	245.5	3,701.9	0.00	0.00	0.00
10,800.0	90.36	180.00	6,749.4	-3,795.8	245.5	3,801.9	0.00	0.00	0.00
10,900.0	90.36	180.00	6,748.8	-3,895.8	245.5	3,901.8	0.00	0.00	0.00
11,000.0	90.36	180.00	6,748.1	-3,995.8	245.5	4,001.7	0.00	0.00	0.00
11,100.0	90.36	180.00	6,747.5	-4,095.8	245.5	4,101.7	0.00	0.00	0.00
11,200.0	90.36	180.00	6,746.9	-4,195.8	245.5	4,201.6	0.00	0.00	0.00
11,300.0	90.36	180.00	6,746.2	-4,295.8	245.5	4,301.6	0.00	0.00	0.00
11,400.0	90.36	180.00	6,745.6	-4,395.8	245.5	4,401.5	0.00	0.00	0.00
11,500.0	90.36	180.00	6,745.0	-4,495.8	245.5	4,501.5	0.00	0.00	0.00
11,600.0	90.36	180.00	6,744.4	-4,595.8	245.5	4,601.4	0.00	0.00	0.00
11,700.0	90.36	180.00	6,743.7	-4,695.8	245.5	4,701.3	0.00	0.00	0.00
11,800.0	90.36	180.00	6,743.1	-4,795.8	245.5	4,801.3	0.00	0.00	0.00
11,900.0	90.36	180.00	6,742.5	-4,895.8	245.5	4,901.2	0.00	0.00	0.00
12,000.0	90.36	180.00	6,741.8	-4,995.8	245.5	5,001.2	0.00	0.00	0.00
12,100.0	90.36	180.00	6,741.2	-5,095.8	245.5	5,101.1	0.00	0.00	0.00
12,200.0	90.36	180.00	6,740.6	-5,195.8	245.5	5,201.1	0.00	0.00	0.00
12,300.0	90.36	180.00	6,740.0	-5,295.7	245.5	5,301.0	0.00	0.00	0.00
12,400.0	90.36	180.00	6,739.3	-5,395.7	245.5	5,400.9	0.00	0.00	0.00
12,500.0	90.36	180.00	6,738.7	-5,495.7	245.5	5,500.9	0.00	0.00	0.00
12,600.0	90.36	180.00	6,738.1	-5,595.7	245.5	5,600.8	0.00	0.00	0.00
12,700.0	90.36	180.00	6,737.5	-5,695.7	245.5	5,700.8	0.00	0.00	0.00
12,800.0	90.36	180.00	6,736.8	-5,795.7	245.5	5,800.7	0.00	0.00	0.00
12,900.0	90.36	180.00	6,736.2	-5,895.7	245.5	5,900.6	0.00	0.00	0.00
13,000.0	90.36	180.00	6,735.6	-5,995.7	245.5	6,000.6	0.00	0.00	0.00
13,100.0	90.36	180.00	6,734.9	-6,095.7	245.5	6,100.5	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Ottenhoff 29R-323
Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	TVD Reference:	WELL @ 4686.0ft (RKB - 23')
Project:	SEC.29-T5N-R64W	MD Reference:	WELL @ 4686.0ft (RKB - 23')
Site:	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	North Reference:	True
Well:	Ottenhoff 29R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-15-16)		

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)	
13,200.0	90.36	180.00	6,734.3	-6,195.7	245.5	6,200.5	0.00	0.00	0.00	
13,300.0	90.36	180.00	6,733.7	-6,295.7	245.5	6,300.4	0.00	0.00	0.00	
13,400.0	90.36	180.00	6,733.1	-6,395.7	245.5	6,400.4	0.00	0.00	0.00	
13,500.0	90.36	180.00	6,732.4	-6,495.7	245.5	6,500.3	0.00	0.00	0.00	
13,600.0	90.36	180.00	6,731.8	-6,595.7	245.5	6,600.2	0.00	0.00	0.00	
13,700.0	90.36	180.00	6,731.2	-6,695.7	245.5	6,700.2	0.00	0.00	0.00	
13,800.0	90.36	180.00	6,730.5	-6,795.7	245.5	6,800.1	0.00	0.00	0.00	
13,900.0	90.36	180.00	6,729.9	-6,895.7	245.5	6,900.1	0.00	0.00	0.00	
14,000.0	90.36	180.00	6,729.3	-6,995.7	245.5	7,000.0	0.00	0.00	0.00	
14,100.0	90.36	180.00	6,728.7	-7,095.7	245.5	7,100.0	0.00	0.00	0.00	
14,200.0	90.36	180.00	6,728.0	-7,195.7	245.5	7,199.9	0.00	0.00	0.00	
14,300.0	90.36	180.00	6,727.4	-7,295.7	245.5	7,299.8	0.00	0.00	0.00	
14,363.3	90.36	180.00	6,727.0	-7,359.0	245.5	7,363.1	0.00	0.00	0.00	
TD at 14363.3 - BHL 2637'FSL & 763'FEL, Sec.32										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude		
- hit/miss target										
- Shape								Longitude		
SHL 559'FNL & 960'FEL - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,381,166.61	3,259,734.43	40.375956 -104.567729		
BHL 2637'FSL & 763'FE - plan hits target center - Point	0.00	0.00	6,727.0	-7,359.0	245.5	1,373,810.86	3,260,057.31	40.355756 -104.566848		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (")	Hole Diameter (")
7,263.9	6,771.6	7"		7	8-3/4

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,573.7	3,530.0	Parkman Sandstone		0.00		
4,251.4	4,200.0	Sussex Sandstone		0.00		
6,488.7	6,415.0	Sharon Springs		0.00		
6,676.5	6,560.0	Niobrara A		0.00		
6,822.1	6,650.0	Niobrara B		0.00		
7,021.6	6,735.0	Niobrara C		0.00		

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Project:</b>	SEC.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (3-15-16)		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.0	800.0	0.0	0.0	KOP - Start Build 1.50
3,789.1	3,741.3	459.5	221.6	Start Drop -2.00
6,059.1	6,007.7	509.0	245.5	KOP #2 - Start Build 7.50
7,263.9	6,771.6	-259.7	245.5	Start 7099.4 hold at 7263.9 MD
14,363.3	6,727.0	-7,359.0	245.5	TD at 14363.3





# **PETROLEUM DEVELOPMENT CORP DJ Basin**

**SEC.29-T5N-R64W**

**Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W**

**Ottenhoff 29R-323**

**Wellbore #1**

**Plan #1 (3-15-16)**

## **Anticollision Report**

**17 March, 2016**



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (3-15-16)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<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>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b> 3/17/2016			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	14,363.3	Plan #1 (3-15-16) (Wellbore #1)	MWD	MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
Existing Wells Sec.29-T5N-R64W						
Blake #B29-16 (Exist) - Wellbore #1 - Wellbore #1	11,113.2	6,765.4	7.7	-210.0	0.035	Level 1, CC, ES, SF
Blake B #29-9 (P&A) - Wellbore #1 - Wellbore #1	9,891.7	6,750.1	92.6	-102.0	0.476	Level 1, CC, ES, SF
Cross #32-11 (D&A) - Wellbore #1 - Wellbore #1	12,468.7	6,806.6	104.8	-13.9	0.883	Level 1, CC, ES, SF
Cross #32-11A (Exist.) - Wellbore #1 - Wellbore #1	12,496.9	6,758.2	383.1	259.8	3.107	CC
Cross #32-11A (Exist.) - Wellbore #1 - Wellbore #1	12,500.0	6,758.2	383.1	259.8	3.106	ES, SF
DIC Amato #42-32 (Exist.) - Wellbore #1 - Wellbore #1	13,759.5	6,759.1	150.4	3.9	1.026	Level 2, CC, ES, SF
Ottenhoff 41-29 (Exist) - Wellbore #1 - Wellbore #1	7,055.8	6,716.8	144.6	114.2	4.760	CC, ES, SF
Ottenhoff 41-6B (Exist) - Wellbore #1 - Wellbore #1	3,043.1	3,051.0	116.1	101.8	8.118	CC, ES, SF
Ottenhoff 41-7B (Exist) - Wellbore #1 - Wellbore #1	938.5	925.0	349.3	345.7	98.225	CC
Ottenhoff 41-7B (Exist) - Wellbore #1 - Wellbore #1	1,000.0	984.3	349.4	345.5	91.236	ES
Ottenhoff 41-7B (Exist) - Wellbore #1 - Wellbore #1	7,900.0	6,848.7	723.6	680.3	16.719	SF
Roskop 29-1 (Exist) - Wellbore #1 - Wellbore #1	8,295.9	6,747.3	172.5	5.5	1.033	Level 2, CC
Roskop 29-1 (Exist) - Wellbore #1 - Wellbore #1	8,300.0	6,747.2	172.6	5.5	1.033	Level 2, ES, SF

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<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
Offset Well - Wellbore - Design						
Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W						
Ottenhoff 29M-203 - Wellbore #1 - Plan #1 (3-14-16)	200.0	200.0	120.1	119.4	178.103	CC, ES
Ottenhoff 29M-203 - Wellbore #1 - Plan #1 (3-14-16)	1,000.0	966.2	199.8	195.5	46.722	SF
Ottenhoff 29M-323 - Wellbore #1 - Plan #1 (3-14-16)	766.3	767.3	90.0	86.8	27.930	CC
Ottenhoff 29M-323 - Wellbore #1 - Plan #1 (3-14-16)	800.0	800.0	90.0	86.6	26.696	ES
Ottenhoff 29M-323 - Wellbore #1 - Plan #1 (3-14-16)	1,100.0	1,093.8	105.6	101.0	22.571	SF
Ottenhoff 29M-423 - Wellbore #1 - Plan #1 (3-14-16)	400.0	400.0	105.0	103.5	66.765	CC, ES
Ottenhoff 29M-423 - Wellbore #1 - Plan #1 (3-14-16)	1,000.0	980.4	150.3	146.1	35.517	SF
Ottenhoff 29R-143 - Wellbore #1 - Plan #1 (3-14-16)	800.0	800.0	59.9	56.5	17.769	CC, ES
Ottenhoff 29R-143 - Wellbore #1 - Plan #1 (3-14-16)	14,363.3	14,241.4	907.7	621.0	3.166	SF
Ottenhoff 29R-203 - Wellbore #1 - Plan #1 (3-14-16)	800.0	800.0	30.1	26.7	8.926	CC, ES
Ottenhoff 29R-203 - Wellbore #1 - Plan #1 (3-14-16)	14,363.3	14,286.6	436.9	151.1	1.529	SF
Ottenhoff 29R-243 - Wellbore #1 - Plan #1 (3-14-16)	800.0	800.0	75.0	71.6	22.231	CC, ES
Ottenhoff 29R-243 - Wellbore #1 - Plan #1 (3-14-16)	1,100.0	1,098.1	81.7	77.0	17.354	SF
Ottenhoff 29R-303 - Wellbore #1 - Plan #1 (3-15-16)	800.0	800.0	44.9	41.5	13.307	CC, ES
Ottenhoff 29R-303 - Wellbore #1 - Plan #1 (3-15-16)	14,363.3	14,376.2	670.7	382.4	2.327	SF
Ottenhoff 29R-423 - Wellbore #1 - Plan #1 (3-15-16)	800.0	799.0	15.0	11.7	4.467	CC
Ottenhoff 29R-423 - Wellbore #1 - Plan #1 (3-15-16)	14,363.3	14,444.0	256.2	3.6	1.014	Level 2, ES, SF
Ottenhoff 29U-243 - Wellbore #1 - Plan #1 (3-15-16)	400.0	400.0	15.0	13.5	9.563	CC
Ottenhoff 29U-243 - Wellbore #1 - Plan #1 (3-15-16)	14,363.3	14,315.2	249.7	-30.8	0.890	Level 1, ES, SF
Ottenhoff 29U-343 - Wellbore #1 - Plan #1 (3-15-16)	200.0	199.0	30.1	29.4	44.778	CC, ES
Ottenhoff 29U-343 - Wellbore #1 - Plan #1 (3-15-16)	14,363.3	14,411.8	462.9	175.0	1.608	SF

Offset Design Existing Wells Sec.29-T5N-R64W - Blake #B29-16 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7078-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,200.0	6,753.2	6,771.2	6,771.2	65.4	135.4	132.81	-4,104.3	239.4	908.6	757.4	151.17	6.010		
10,300.0	6,752.5	6,770.5	6,770.5	67.2	135.4	129.50	-4,104.3	239.4	808.6	648.8	159.73	5.062		
10,400.0	6,751.9	6,769.9	6,769.9	69.1	135.4	125.84	-4,104.3	239.4	708.6	540.0	168.61	4.202		
10,500.0	6,751.3	6,769.3	6,769.3	71.0	135.4	121.82	-4,104.3	239.4	608.6	430.9	177.65	3.426		
10,600.0	6,750.6	6,768.6	6,768.6	72.8	135.4	117.40	-4,104.3	239.4	508.6	322.0	186.62	2.725		
10,700.0	6,750.0	6,768.0	6,768.0	74.7	135.4	112.61	-4,104.3	239.4	408.6	213.4	195.19	2.093		
10,800.0	6,749.4	6,767.4	6,767.4	76.6	135.3	107.46	-4,104.3	239.4	308.6	105.6	202.97	1.520		
10,900.0	6,748.8	6,766.8	6,766.8	78.5	135.3	102.00	-4,104.3	239.4	208.6	-0.9	209.54	0.996	Level 1	
11,000.0	6,748.1	6,766.1	6,766.1	80.4	135.3	96.31	-4,104.3	239.4	108.7	-105.8	214.48	0.507	Level 1	
11,100.0	6,747.5	6,765.5	6,765.5	82.2	135.3	90.50	-4,104.3	239.4	10.5	-206.9	217.48	0.048	Level 1	
11,113.2	6,747.4	6,765.4	6,765.4	82.5	135.3	89.73	-4,104.3	239.4	7.7	-210.0	217.72	0.035	Level 1, CC, ES, SF	
11,200.0	6,746.9	6,764.9	6,764.9	84.1	135.3	84.67	-4,104.3	239.4	91.7	-126.7	218.39	0.420	Level 1	
11,300.0	6,746.2	6,764.2	6,764.2	86.0	135.3	78.96	-4,104.3	239.4	191.5	-25.7	217.23	0.882	Level 1	
11,400.0	6,745.6	6,763.6	6,763.6	87.9	135.3	73.45	-4,104.3	239.4	291.5	77.3	214.23	1.361	Level 3	
11,500.0	6,745.0	6,763.0	6,763.0	89.8	135.3	68.24	-4,104.3	239.4	391.5	181.8	209.72	1.867		
11,600.0	6,744.4	6,762.4	6,762.4	91.7	135.2	63.39	-4,104.3	239.4	491.5	287.4	204.11	2.408		
11,700.0	6,743.7	6,761.7	6,761.7	93.6	135.2	58.91	-4,104.3	239.4	591.5	393.7	197.80	2.990		
11,800.0	6,743.1	6,761.1	6,761.1	95.5	135.2	54.82	-4,104.3	239.4	691.5	500.3	191.12	3.618		
11,900.0	6,742.5	6,760.5	6,760.5	97.4	135.2	51.10	-4,104.3	239.4	791.5	607.1	184.35	4.293		
12,000.0	6,741.8	6,759.8	6,759.8	99.3	135.2	47.74	-4,104.3	239.4	891.5	713.8	177.69	5.017		
12,100.0	6,741.2	6,759.2	6,759.2	101.2	135.2	44.69	-4,104.3	239.4	991.4	820.2	171.27	5.789		

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Existing Wells Sec.29-T5N-R64W - Blake #B29-16 (Exist) - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft	
Survey Program: 7078-UNKNOWN																						Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning											
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor													
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)														

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Blake B #29-9 (P&A) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7086-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
8,900.0	6,761.3	6,756.3	6,756.3	41.6	135.1	93.85	-2,887.5	153.0	996.0	819.8	176.26	5.651		
9,000.0	6,760.7	6,755.7	6,755.7	43.4	135.1	93.46	-2,887.5	153.0	896.5	718.4	178.10	5.034		
9,100.0	6,760.1	6,755.1	6,755.1	45.2	135.1	93.08	-2,887.5	153.0	797.1	617.2	179.94	4.430		
9,200.0	6,759.4	6,754.4	6,754.4	47.0	135.1	92.69	-2,887.5	153.0	697.9	516.1	181.79	3.839		
9,300.0	6,758.8	6,753.8	6,753.8	48.8	135.1	92.30	-2,887.5	153.0	598.9	415.3	183.63	3.261		
9,400.0	6,758.2	6,753.2	6,753.2	50.6	135.1	91.91	-2,887.5	153.0	500.4	314.9	185.48	2.698		
9,500.0	6,757.6	6,752.6	6,752.6	52.4	135.1	91.52	-2,887.5	153.0	402.5	215.2	187.33	2.149		
9,600.0	6,756.9	6,751.9	6,751.9	54.3	135.0	91.13	-2,887.5	153.0	306.1	116.9	189.18	1.618		
9,700.0	6,756.3	6,751.3	6,751.3	56.1	135.0	90.75	-2,887.5	153.0	212.9	21.9	191.02	1.115	Level 2	
9,800.0	6,755.7	6,750.7	6,750.7	57.9	135.0	90.36	-2,887.5	153.0	130.3	-62.5	192.86	0.676	Level 1	
9,891.7	6,755.1	6,750.1	6,750.1	59.6	135.0	90.00	-2,887.5	153.0	92.6	-102.0	194.55	0.476	Level 1, CC, ES, SF	
9,900.0	6,755.0	6,750.0	6,750.0	59.8	135.0	89.97	-2,887.5	153.0	92.9	-101.8	194.70	0.477	Level 1	
10,000.0	6,754.4	6,749.4	6,749.4	61.6	135.0	89.58	-2,887.5	153.0	142.4	-54.1	196.53	0.725	Level 1	
10,100.0	6,753.8	6,748.8	6,748.8	63.5	135.0	89.19	-2,887.5	153.0	227.9	29.5	198.36	1.149	Level 2	
10,200.0	6,753.2	6,748.2	6,748.2	65.4	135.0	88.80	-2,887.5	153.0	321.9	121.7	200.18	1.608		
10,300.0	6,752.5	6,747.5	6,747.5	67.2	135.0	88.41	-2,887.5	153.0	418.6	216.6	202.00	2.072		
10,400.0	6,751.9	6,746.9	6,746.9	69.1	134.9	88.02	-2,887.5	153.0	516.6	312.8	203.81	2.535		
10,500.0	6,751.3	6,746.3	6,746.3	71.0	134.9	87.64	-2,887.5	153.0	615.3	409.6	205.61	2.992		
10,600.0	6,750.6	6,745.6	6,745.6	72.8	134.9	87.25	-2,887.5	153.0	714.3	506.9	207.41	3.444		
10,700.0	6,750.0	6,745.0	6,745.0	74.7	134.9	86.86	-2,887.5	153.0	813.5	604.3	209.20	3.889		
10,800.0	6,749.4	6,744.4	6,744.4	76.6	134.9	86.47	-2,887.5	153.0	913.0	702.0	210.98	4.327		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Cross #32-11 (D&A) - Wellbore #1 - Wellbore #1													Offset Site Error:		0.0 ft
Survey Program: 527-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)				
11,500.0	6,745.0	6,554.0	6,550.6	89.8	13.7	-32.43	-5,380.4	378.9	920.2	854.9	65.36	14.079			
11,600.0	6,744.4	6,561.5	6,557.8	91.7	13.7	-33.32	-5,382.3	378.8	824.3	756.8	67.57	12.200			
11,700.0	6,743.7	6,575.6	6,571.4	93.6	13.7	-35.09	-5,386.1	378.3	729.1	658.3	70.85	10.291			
11,800.0	6,743.1	6,593.7	6,588.8	95.5	13.8	-37.57	-5,391.3	377.5	634.7	559.7	75.01	8.462			
11,900.0	6,742.5	6,616.0	6,610.0	97.4	13.8	-41.00	-5,397.9	376.2	541.1	460.8	80.31	6.738			
12,000.0	6,741.8	6,642.5	6,635.0	99.3	13.9	-45.75	-5,406.3	374.1	448.8	361.7	87.09	5.153			
12,100.0	6,741.2	6,673.3	6,663.9	101.2	13.9	-52.45	-5,416.4	370.8	358.0	262.3	95.65	3.743			
12,200.0	6,740.6	6,706.8	6,695.1	103.1	14.0	-61.67	-5,427.8	366.1	269.8	164.2	105.62	2.555			
12,300.0	6,740.0	6,737.9	6,723.8	104.9	14.0	-72.57	-5,438.8	361.2	187.7	73.1	114.59	1.638			
12,400.0	6,739.3	6,780.7	6,762.5	106.8	14.1	-91.38	-5,454.7	352.9	122.5	1.7	120.80	1.014	Level 2		
12,468.7	6,738.9	6,806.6	6,785.8	108.2	14.1	-104.32	-5,464.7	347.0	104.8	-13.9	118.67	0.883	Level 1, CC, ES, SF		
12,500.0	6,738.7	6,819.6	6,797.3	108.7	14.1	-110.82	-5,469.8	344.1	108.6	-7.0	115.57	0.940	Level 1		
12,600.0	6,738.1	6,862.6	6,835.2	110.6	14.2	-130.53	-5,487.5	333.7	159.0	60.0	98.96	1.607			
12,700.0	6,737.5	6,901.3	6,869.1	112.5	14.3	-144.29	-5,503.4	324.2	235.4	152.7	82.73	2.846			
12,800.0	6,736.8	6,935.8	6,899.6	114.4	14.3	-153.52	-5,517.0	315.3	320.4	249.2	71.13	4.504			
12,900.0	6,736.2	6,965.5	6,925.9	116.4	14.4	-159.60	-5,528.1	307.4	409.2	345.2	63.98	6.396			
13,000.0	6,735.6	6,992.0	6,949.7	118.3	14.4	-163.91	-5,537.6	300.4	500.2	440.6	59.57	8.396			
13,100.0	6,734.9	7,020.9	6,975.7	120.2	14.4	-167.72	-5,547.5	292.6	592.5	536.2	56.29	10.526			
13,200.0	6,734.3	7,050.3	7,002.2	122.1	14.5	-170.83	-5,557.3	284.7	685.6	631.3	54.28	12.630			
13,300.0	6,733.7	7,065.0	7,015.5	124.0	14.5	-172.16	-5,562.2	280.8	779.3	725.2	54.05	14.417			
13,400.0	6,733.1	7,065.0	7,015.5	125.9	14.5	-172.16	-5,562.2	280.8	874.3	819.4	54.82	15.947			
13,500.0	6,732.4	7,065.0	7,015.5	127.8	14.5	-172.16	-5,562.2	280.8	970.2	914.6	55.59	17.452			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Cross #32-11A (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)			
11,600.0	6,744.4	6,766.4	6,764.2	91.7	14.7	-90.23	-5,492.6	628.7	975.3	869.0	106.30	9.174		
11,700.0	6,743.7	6,765.5	6,763.3	93.6	14.7	-90.09	-5,492.6	628.7	884.2	776.0	108.20	8.172		
11,800.0	6,743.1	6,764.6	6,762.4	95.5	14.7	-89.95	-5,492.6	628.7	795.2	685.1	110.09	7.223		
11,900.0	6,742.5	6,763.7	6,761.5	97.4	14.7	-89.81	-5,492.6	628.7	709.2	597.3	111.99	6.333		
12,000.0	6,741.8	6,762.7	6,760.6	99.3	14.7	-89.68	-5,492.6	628.7	627.4	513.5	113.88	5.509		
12,100.0	6,741.2	6,761.8	6,759.6	101.2	14.7	-89.54	-5,492.6	628.6	551.6	435.8	115.78	4.765		
12,200.0	6,740.6	6,760.9	6,758.7	103.1	14.7	-89.40	-5,492.6	628.6	484.7	367.0	117.67	4.119		
12,300.0	6,740.0	6,760.0	6,757.8	104.9	14.7	-89.26	-5,492.6	628.6	430.7	311.2	119.57	3.602		
12,400.0	6,739.3	6,759.1	6,756.9	106.8	14.7	-89.13	-5,492.6	628.6	395.2	273.7	121.47	3.253		
12,496.9	6,738.7	6,758.2	6,756.0	108.7	14.7	-88.99	-5,492.6	628.6	383.1	259.8	123.30	3.107 CC		
12,500.0	6,738.7	6,758.2	6,756.0	108.7	14.7	-88.99	-5,492.6	628.6	383.1	259.8	123.36	3.106 ES, SF		
12,600.0	6,738.1	6,757.2	6,755.1	110.6	14.7	-88.85	-5,492.6	628.6	396.7	271.5	125.26	3.167		
12,700.0	6,737.5	6,756.3	6,754.1	112.5	14.7	-88.71	-5,492.6	628.5	433.6	306.4	127.15	3.410		
12,800.0	6,736.8	6,755.4	6,753.2	114.4	14.7	-88.58	-5,492.6	628.5	488.5	359.4	129.05	3.785		
12,900.0	6,736.2	6,754.5	6,752.3	116.4	14.7	-88.44	-5,492.6	628.5	556.1	425.1	130.95	4.247		
13,000.0	6,735.6	6,753.6	6,751.4	118.3	14.7	-88.30	-5,492.6	628.5	632.3	499.5	132.84	4.760		
13,100.0	6,734.9	6,752.6	6,750.5	120.2	14.7	-88.16	-5,492.6	628.5	714.5	579.7	134.74	5.303		
13,200.0	6,734.3	6,751.7	6,749.5	122.1	14.7	-88.03	-5,492.6	628.5	800.7	664.0	136.63	5.860		
13,300.0	6,733.7	6,750.8	6,748.6	124.0	14.7	-87.89	-5,492.6	628.5	889.8	751.2	138.53	6.423		
13,400.0	6,733.1	6,749.9	6,747.7	125.9	14.7	-87.75	-5,492.6	628.4	981.0	840.5	140.42	6.986		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - DIC Amato #42-32 (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)			
12,800.0	6,736.8	6,788.7	6,788.2	114.4	13.9	-101.43	-6,754.5	395.8	970.8	844.9	125.90	7.711		
12,900.0	6,736.2	6,785.7	6,785.1	116.4	13.9	-100.30	-6,754.6	395.8	872.2	744.0	128.21	6.803		
13,000.0	6,735.6	6,782.6	6,782.0	118.3	13.9	-99.15	-6,754.7	395.8	773.9	643.4	130.48	5.931		
13,100.0	6,734.9	6,779.5	6,778.9	120.2	13.9	-98.00	-6,754.8	395.8	676.2	543.4	132.72	5.095		
13,200.0	6,734.3	6,776.4	6,775.8	122.1	13.9	-96.85	-6,754.8	395.8	579.1	444.2	134.93	4.292		
13,300.0	6,733.7	6,773.3	6,772.8	124.0	13.9	-95.68	-6,754.9	395.9	483.3	346.2	137.10	3.525		
13,400.0	6,733.1	6,770.2	6,769.7	125.9	13.9	-94.52	-6,755.0	395.9	389.6	250.3	139.23	2.798		
13,500.0	6,732.4	6,767.1	6,766.6	127.8	13.9	-93.35	-6,755.1	395.9	299.9	158.5	141.32	2.122		
13,600.0	6,731.8	6,764.1	6,763.5	129.7	13.9	-92.18	-6,755.1	395.9	219.2	75.8	143.36	1.529		
13,700.0	6,731.2	6,761.0	6,760.4	131.6	13.9	-91.00	-6,755.2	395.9	161.7	16.4	145.35	1.113	Level 2	
13,759.5	6,730.8	6,759.1	6,758.6	132.7	13.9	-90.30	-6,755.3	395.9	150.4	3.9	146.51	1.026	Level 2, CC, ES, SF	
13,800.0	6,730.5	6,757.9	6,757.3	133.5	13.9	-89.83	-6,755.3	395.9	155.7	8.4	147.29	1.057	Level 2	
13,900.0	6,729.9	6,754.8	6,754.3	135.4	13.8	-88.65	-6,755.4	395.9	205.7	56.6	149.18	1.379	Level 3	
14,000.0	6,729.3	6,751.7	6,751.2	137.3	13.8	-87.48	-6,755.4	396.0	283.5	132.5	151.02	1.877		
14,100.0	6,728.7	6,748.6	6,748.1	139.2	13.8	-86.31	-6,755.5	396.0	372.1	219.3	152.80	2.435		
14,200.0	6,728.0	6,745.5	6,745.0	141.1	13.8	-85.14	-6,755.6	396.0	465.2	310.7	154.52	3.011		
14,300.0	6,727.4	6,742.5	6,741.9	143.0	13.8	-83.98	-6,755.7	396.0	560.8	404.6	156.18	3.590		
14,363.3	6,727.0	6,740.5	6,740.0	144.2	13.8	-83.24	-6,755.7	396.0	622.0	464.8	157.20	3.957		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Ottenhoff 41-29 (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	0.0	0.0	0.0	0.0	103.95	-76.9	309.5	320.1					
100.0	100.0	74.2	74.2	0.1	0.1	103.96	-76.9	309.4	318.8	318.6	0.21	1,510.995		
187.5	187.5	160.5	160.5	0.3	0.2	104.01	-77.1	309.1	318.5	318.0	0.54	590.150		
200.0	200.0	172.7	172.7	0.3	0.3	104.01	-77.1	309.1	318.5	318.0	0.59	542.270		
300.0	300.0	272.2	272.2	0.6	0.4	104.02	-77.2	309.3	318.8	317.8	0.99	320.926		
400.0	400.0	369.9	369.9	0.8	0.7	104.07	-77.6	309.7	319.3	317.9	1.44	221.165		
500.0	500.0	468.7	468.7	1.0	0.9	104.21	-78.7	310.7	320.6	318.7	1.92	167.102		
600.0	600.0	567.3	567.3	1.2	1.2	104.33	-79.7	312.0	322.1	319.7	2.40	134.344		
700.0	700.0	666.2	666.1	1.5	1.4	104.44	-80.8	313.8	324.1	321.2	2.87	112.933		
800.0	800.0	764.5	764.4	1.7	1.6	104.38	-81.1	316.1	326.4	323.1	3.33	97.942		
900.0	900.0	863.6	863.5	1.9	1.9	78.76	-81.5	318.9	329.0	325.2	3.80	86.593		
1,000.0	999.9	964.7	964.6	2.1	2.1	79.36	-81.9	321.6	331.0	326.7	4.28	77.423		
1,100.0	1,099.7	1,064.5	1,064.3	2.4	2.4	80.40	-82.3	324.0	332.3	327.5	4.76	69.853		
1,200.0	1,199.3	1,164.8	1,164.5	2.6	2.7	81.94	-83.0	326.5	333.4	328.1	5.25	63.452		
1,300.0	1,298.6	1,263.7	1,263.5	2.8	2.9	83.90	-83.6	328.6	334.2	328.4	5.77	57.963		
1,400.0	1,397.5	1,364.2	1,363.9	3.1	3.2	86.29	-84.2	330.9	335.4	329.1	6.30	53.201		
1,500.0	1,496.1	1,463.0	1,462.7	3.4	3.4	89.05	-84.5	332.7	336.5	329.6	6.86	49.014		
1,600.0	1,594.2	1,560.6	1,560.3	3.8	3.7	92.14	-85.0	334.7	338.7	331.3	7.45	45.438		
1,700.0	1,692.3	1,659.3	1,659.0	4.1	4.0	95.28	-85.4	336.7	342.1	334.0	8.06	42.427		
1,800.0	1,790.4	1,757.6	1,757.2	4.5	4.2	98.26	-85.4	338.8	346.2	337.5	8.67	39.924		
1,900.0	1,888.5	1,855.7	1,855.3	4.9	4.5	101.12	-85.2	341.1	351.4	342.1	9.28	37.852		
2,000.0	1,986.5	1,953.7	1,953.3	5.2	4.7	103.91	-85.1	343.4	357.4	347.6	9.90	36.122		
2,100.0	2,084.6	2,053.0	2,052.6	5.6	5.0	106.57	-84.7	345.9	364.3	353.8	10.51	34.680		
2,200.0	2,182.7	2,151.5	2,151.0	6.0	5.2	109.12	-84.1	348.1	371.6	360.5	11.11	33.461		
2,300.0	2,280.8	2,248.7	2,248.2	6.4	5.4	111.50	-83.6	350.7	380.0	368.3	11.70	32.466		
2,400.0	2,378.9	2,346.4	2,345.9	6.8	5.7	113.77	-83.0	353.5	389.1	376.8	12.30	31.635		
2,500.0	2,476.9	2,445.4	2,444.8	7.2	5.9	115.96	-82.6	356.4	399.0	386.1	12.89	30.944		
2,600.0	2,575.0	2,544.4	2,543.8	7.6	6.2	118.08	-82.0	359.0	409.0	395.5	13.48	30.344		
2,700.0	2,673.1	2,643.1	2,642.5	8.0	6.4	120.09	-81.5	361.5	419.7	405.7	14.06	29.859		
2,800.0	2,771.2	2,743.2	2,742.5	8.4	6.7	122.08	-80.9	363.5	430.5	415.9	14.63	29.429		
2,900.0	2,869.3	2,841.0	2,840.3	8.9	6.9	124.05	-80.6	364.7	441.7	426.5	15.19	29.080		
3,000.0	2,967.3	2,939.8	2,939.1	9.3	7.2	125.98	-80.6	365.7	453.5	437.7	15.74	28.812		
3,100.0	3,065.4	3,039.8	3,039.1	9.7	7.4	127.84	-80.2	366.4	465.3	449.0	16.27	28.600		
3,200.0	3,163.5	3,138.3	3,137.6	10.1	7.7	129.55	-79.6	367.2	477.5	460.7	16.78	28.451		
3,300.0	3,261.6	3,237.1	3,236.4	10.5	7.9	131.19	-79.0	368.0	489.9	472.6	17.28	28.344		
3,400.0	3,359.7	3,335.8	3,335.1	10.9	8.1	132.78	-78.4	368.4	502.7	485.0	17.76	28.300		
3,500.0	3,457.7	3,434.2	3,433.5	11.3	8.3	134.28	-77.5	368.9	515.6	497.4	18.24	28.275		
3,600.0	3,555.8	3,527.8	3,527.1	11.8	8.5	135.68	-77.4	369.1	529.5	510.8	18.71	28.305		
3,700.0	3,653.9	3,623.0	3,622.3	12.2	8.7	137.06	-77.9	369.3	544.3	525.2	19.16	28.415		
3,800.0	3,752.0	3,718.5	3,717.8	12.6	8.8	138.40	-78.9	369.6	559.9	540.4	19.57	28.610		
3,900.0	3,850.4	3,815.0	3,814.3	12.9	9.0	139.72	-80.3	369.9	574.6	554.7	19.93	28.829		
4,000.0	3,949.5	3,917.3	3,916.6	13.2	9.2	140.79	-81.8	370.2	586.9	566.6	20.29	28.930		
4,100.0	4,048.9	4,037.4	4,036.6	13.4	9.4	141.56	-80.6	370.9	594.3	573.6	20.65	28.779		
4,200.0	4,148.7	4,151.8	4,150.9	13.6	9.5	141.97	-76.2	370.9	596.1	575.1	20.96	28.443		
4,300.0	4,248.6	4,261.0	4,259.9	13.8	9.6	142.13	-69.9	369.9	593.0	571.8	21.22	27.950		
4,400.0	4,348.6	4,361.0	4,359.7	13.9	9.7	167.91	-63.5	368.1	586.7	565.2	21.45	27.348		
4,500.0	4,448.6	4,456.5	4,455.1	14.1	9.8	168.02	-57.9	365.9	580.5	558.8	21.71	26.739		
4,600.0	4,548.6	4,548.9	4,547.3	14.2	9.9	168.11	-53.4	363.9	575.3	553.3	21.97	26.186		
4,700.0	4,648.6	4,641.9	4,640.3	14.4	10.0	168.18	-50.1	362.6	571.6	549.3	22.24	25.699		
4,800.0	4,748.6	4,738.1	4,736.4	14.5	10.1	168.22	-47.4	361.6	568.6	546.1	22.53	25.240		
4,900.0	4,848.6	4,832.7	4,831.0	14.7	10.2	168.23	-45.4	361.0	566.4	543.6	22.84	24.803		

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Ottenhoff 41-29 (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)				
5,000.0	4,948.6	4,927.5	4,925.8	14.8	10.4	168.21	-44.4	361.1	565.4	542.2	23.18	24.386	CC, ES, SF		
5,100.0	5,048.6	5,026.5	5,024.8	15.0	10.6	168.15	-43.5	361.5	564.6	541.0	23.58	23.942			
5,153.2	5,101.8	5,076.6	5,074.8	15.1	10.7	168.10	-43.3	362.0	564.4	540.6	23.80	23.714			
5,200.0	5,148.6	5,121.0	5,119.3	15.1	10.8	168.03	-43.3	362.6	564.5	540.5	24.00	23.522			
5,300.0	5,248.6	5,218.5	5,216.7	15.3	11.1	167.83	-43.6	364.7	565.3	540.8	24.45	23.122			
5,400.0	5,348.6	5,321.7	5,320.0	15.5	11.3	167.61	-43.6	366.9	565.8	540.9	24.91	22.713			
5,500.0	5,448.6	5,420.8	5,419.0	15.6	11.6	167.41	-43.4	368.9	566.0	540.7	25.37	22.315			
5,600.0	5,548.6	5,514.4	5,512.5	15.8	11.8	167.22	-44.0	371.0	567.2	541.4	25.80	21.987			
5,700.0	5,648.6	5,615.4	5,613.5	16.0	12.0	167.05	-45.1	372.9	568.6	542.4	26.23	21.676			
5,800.0	5,748.6	5,713.5	5,711.6	16.1	12.3	166.88	-46.3	375.0	570.2	543.6	26.66	21.386			
5,900.0	5,848.6	5,814.1	5,812.2	16.3	12.5	166.72	-47.6	376.9	572.0	544.9	27.10	21.108			
6,000.0	5,948.6	5,917.4	5,915.4	16.5	12.7	166.56	-48.5	378.8	573.3	545.7	27.54	20.812			
6,100.0	6,048.6	6,016.3	6,014.3	16.6	13.0	-13.61	-49.4	380.4	573.4	545.5	27.89	20.562			
6,200.0	6,147.8	6,118.5	6,116.5	16.7	13.2	-14.22	-50.1	381.7	562.9	535.1	27.77	20.270			
6,300.0	6,244.6	6,215.2	6,213.3	16.6	13.5	-15.46	-50.5	383.1	539.6	512.4	27.22	19.824			
6,400.0	6,337.4	6,306.9	6,305.0	16.5	13.7	-17.49	-51.1	384.2	504.7	478.4	26.30	19.194			
6,500.0	6,424.5	6,396.3	6,394.3	16.3	13.9	-20.78	-51.6	385.1	458.7	433.5	25.16	18.229			
6,600.0	6,504.5	6,474.7	6,472.7	16.0	14.1	-25.87	-52.1	386.1	402.8	378.7	24.11	16.708			
6,700.0	6,576.0	6,545.5	6,543.5	15.8	14.3	-33.97	-52.7	387.1	339.3	315.5	23.79	14.262			
6,800.0	6,637.8	6,607.4	6,605.4	15.6	14.4	-46.62	-53.5	388.2	271.1	246.0	25.13	10.788			
6,900.0	6,688.8	6,659.4	6,657.4	15.5	14.5	-64.11	-54.1	389.0	204.2	176.2	27.97	7.299			
7,000.0	6,728.1	6,699.9	6,697.9	15.5	14.6	-81.73	-54.6	389.8	154.0	124.0	29.98	5.135			
7,055.8	6,744.7	6,716.8	6,714.8	15.7	14.7	-88.80	-54.9	390.1	144.6	114.2	30.37	4.760			
7,100.0	6,755.1	6,727.6	6,725.5	15.9	14.7	-92.44	-55.0	390.3	150.8	120.3	30.48	4.946			
7,200.0	6,769.3	6,742.9	6,740.9	16.5	14.7	-93.72	-55.2	390.7	202.1	171.1	31.05	6.509			
7,300.0	6,771.4	6,746.4	6,744.3	17.3	14.7	-89.39	-55.3	390.7	281.0	249.0	31.99	8.784			
7,400.0	6,770.8	6,747.2	6,745.2	18.3	14.7	-89.72	-55.3	390.8	370.2	337.3	32.93	11.242			
7,500.0	6,770.1	6,748.1	6,746.0	19.4	14.7	-90.05	-55.3	390.8	463.9	429.9	34.02	13.637			
7,600.0	6,769.5	6,748.9	6,746.9	20.6	14.8	-90.38	-55.3	390.8	559.7	524.5	35.22	15.891			
7,700.0	6,768.9	6,749.8	6,747.7	22.0	14.8	-90.72	-55.3	390.8	656.8	620.3	36.53	17.980			
7,800.0	6,768.2	6,750.6	6,748.6	23.4	14.8	-91.06	-55.3	390.8	754.7	716.7	37.92	19.901			
7,900.0	6,767.6	6,751.5	6,749.4	24.8	14.8	-91.40	-55.4	390.9	853.0	813.6	39.38	21.661			
8,000.0	6,767.0	6,752.4	6,750.3	26.4	14.8	-91.75	-55.4	390.9	951.7	910.8	40.89	23.272			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Ottenhoff 41-6B (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft	
Survey Program: 488-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)			
0.0	0.0	0.0	0.0	0.0	0.0	98.72	-49.6	322.9	326.9					
100.0	100.0	88.3	88.3	0.1	0.1	98.73	-49.6	322.9	326.7	326.4	0.23	1,422.135		
200.0	200.0	188.6	188.6	0.3	0.3	98.74	-49.6	322.7	326.5	326.0	0.59	555.756		
300.0	300.0	288.9	288.9	0.6	0.4	98.76	-49.7	322.5	326.3	325.4	0.95	345.159		
400.0	400.0	389.2	389.2	0.8	0.5	98.80	-49.9	322.2	326.0	324.7	1.30	250.143		
500.0	500.0	489.5	489.5	1.0	0.7	98.84	-50.0	321.7	325.6	323.9	1.66	195.958		
600.0	600.0	588.4	588.4	1.2	0.8	98.80	-49.8	321.5	325.3	323.3	2.05	158.727		
641.9	641.9	629.9	629.9	1.3	0.9	98.74	-49.4	321.5	325.3	323.1	2.21	147.061		
700.0	700.0	686.5	686.5	1.5	1.0	98.61	-48.7	321.7	325.4	323.0	2.41	134.955		
800.0	800.0	783.4	783.4	1.7	1.1	98.37	-47.5	322.8	326.3	323.6	2.74	119.199		
900.0	900.0	881.9	881.9	1.9	1.2	72.47	-45.8	324.8	327.6	324.5	3.11	105.469		
1,000.0	999.9	981.1	981.0	2.1	1.4	72.57	-43.0	327.2	328.5	325.0	3.50	93.938		
1,100.0	1,099.7	1,081.0	1,080.7	2.4	1.6	72.90	-39.1	329.9	328.6	324.7	3.93	83.518		
1,200.0	1,199.3	1,182.2	1,181.8	2.6	1.8	73.51	-34.0	332.7	328.0	323.6	4.40	74.481		
1,300.0	1,298.6	1,283.4	1,282.8	2.8	2.1	74.51	-28.4	335.0	326.0	321.1	4.90	66.579		
1,400.0	1,397.5	1,379.2	1,378.3	3.1	2.3	75.71	-22.2	337.9	324.0	318.6	5.41	59.914		
1,500.0	1,496.1	1,475.8	1,474.5	3.4	2.5	77.13	-14.8	342.2	322.8	316.8	5.95	54.221		
1,600.0	1,594.2	1,578.9	1,577.3	3.8	2.8	78.90	-6.1	346.7	321.0	314.5	6.55	48.991		
1,700.0	1,692.3	1,685.0	1,682.8	4.1	3.1	80.69	3.8	350.2	318.2	311.0	7.19	44.276		
1,800.0	1,790.4	1,797.2	1,794.2	4.5	3.4	82.27	17.3	350.8	312.3	304.4	7.85	39.765		
1,900.0	1,888.5	1,905.6	1,901.2	4.9	3.7	83.38	34.0	348.5	302.8	294.3	8.52	35.552		
2,000.0	1,986.5	2,016.0	2,010.1	5.2	4.0	84.66	51.7	342.9	290.6	281.4	9.19	31.615		
2,100.0	2,084.6	2,127.1	2,118.8	5.6	4.3	85.91	71.9	333.0	274.1	264.2	9.87	27.775		
2,200.0	2,182.7	2,224.9	2,214.4	6.0	4.5	87.36	89.7	322.0	255.7	245.2	10.51	24.326		
2,300.0	2,280.8	2,325.2	2,312.4	6.4	4.8	89.21	107.5	310.1	237.0	225.8	11.16	21.236		
2,400.0	2,378.9	2,423.5	2,408.4	6.8	5.1	91.59	124.4	297.7	218.1	206.3	11.80	18.483		
2,500.0	2,476.9	2,524.3	2,506.9	7.2	5.3	95.06	140.4	283.2	198.7	186.3	12.42	15.995		
2,600.0	2,575.0	2,625.4	2,605.3	7.6	5.6	99.96	155.7	265.9	178.4	165.4	13.02	13.707		
2,700.0	2,673.1	2,725.4	2,702.1	8.0	5.8	106.87	170.4	245.8	157.4	143.9	13.53	11.632		
2,800.0	2,771.2	2,821.1	2,794.3	8.4	6.1	115.90	184.8	224.3	137.5	123.6	13.93	9.869		
2,900.0	2,869.3	2,914.2	2,884.3	8.9	6.4	126.97	197.4	204.4	123.8	109.6	14.19	8.725		
3,000.0	2,967.3	3,009.7	2,976.7	9.3	6.6	140.65	209.6	183.3	116.8	102.5	14.28	8.180		
3,043.1	3,009.6	3,051.0	3,016.6	9.4	6.7	146.92	214.9	174.0	116.1	101.8	14.30	8.118	CC, ES, SF	
3,100.0	3,065.4	3,104.9	3,068.7	9.7	6.9	155.05	222.0	162.0	117.4	103.1	14.35	8.181		
3,200.0	3,163.5	3,199.8	3,160.7	10.1	7.1	167.79	233.8	142.2	126.0	111.4	14.60	8.631		
3,300.0	3,261.6	3,295.5	3,254.1	10.5	7.4	177.55	244.9	124.7	140.2	125.2	15.04	9.320		
3,400.0	3,359.7	3,391.8	3,348.8	10.9	7.7	-175.75	254.2	109.9	157.9	142.3	15.60	10.120		
3,500.0	3,457.7	3,490.1	3,445.7	11.3	7.9	-170.87	263.1	96.3	177.1	160.9	16.21	10.923		
3,600.0	3,555.8	3,587.4	3,541.3	11.8	8.2	-166.16	274.1	81.1	196.6	179.7	16.88	11.649		
3,700.0	3,653.9	3,681.4	3,633.0	12.2	8.5	-161.81	285.8	64.3	217.9	200.4	17.57	12.401		
3,800.0	3,752.0	3,776.0	3,725.0	12.6	8.8	-157.90	297.6	45.6	241.5	223.2	18.30	13.196		
3,900.0	3,850.4	3,872.5	3,818.0	12.9	9.1	-153.90	312.1	24.6	264.3	245.3	19.07	13.864		
4,000.0	3,949.5	3,968.9	3,910.5	13.2	9.4	-149.87	328.2	2.6	285.2	265.4	19.83	14.382		
4,100.0	4,048.9	4,067.0	4,004.9	13.4	9.7	-146.23	343.8	-18.8	304.1	283.6	20.56	14.792		
4,200.0	4,148.7	4,165.0	4,099.6	13.6	10.0	-142.91	358.7	-39.1	320.8	299.6	21.24	15.102		
4,300.0	4,248.6	4,260.8	4,192.4	13.8	10.3	-139.81	372.4	-58.5	335.9	314.0	21.87	15.359		
4,400.0	4,348.6	4,359.2	4,288.2	13.9	10.6	-111.12	384.2	-77.7	349.9	327.4	22.46	15.577		
4,500.0	4,448.6	4,459.7	4,386.1	14.1	10.9	-108.17	396.7	-96.7	363.7	340.7	23.07	15.766		
4,600.0	4,548.6	4,557.9	4,481.7	14.2	11.2	-105.38	409.8	-114.9	377.8	354.2	23.65	15.974		
4,700.0	4,648.6	4,660.1	4,581.4	14.4	11.5	-102.81	422.9	-133.2	392.3	368.1	24.22	16.194		
4,800.0	4,748.6	4,753.6	4,672.7	14.5	11.8	-100.68	434.5	-149.5	407.0	382.3	24.74	16.451		

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Ottenhoff 41-6B (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft	
Survey Program: 488-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)			
4,900.0	4,848.6	4,854.8	4,771.4	14.7	12.1	-98.44	447.7	-167.6	422.7	397.5	25.27	16.727		
5,000.0	4,948.6	4,951.3	4,865.7	14.8	12.4	-96.49	460.1	-184.4	438.5	412.7	25.77	17.013		
5,100.0	5,048.6	5,042.8	4,954.8	15.0	12.7	-94.72	472.1	-201.1	455.5	429.3	26.25	17.355		
5,200.0	5,148.6	5,138.9	5,048.2	15.1	13.0	-92.97	484.9	-219.4	473.9	447.2	26.73	17.731		
5,300.0	5,248.6	5,244.6	5,151.3	15.3	13.4	-91.32	497.9	-238.8	491.9	464.7	27.22	18.073		
5,400.0	5,348.6	5,349.4	5,254.1	15.5	13.7	-90.03	508.8	-256.5	508.7	481.0	27.69	18.372		
5,500.0	5,448.6	5,455.1	5,358.2	15.6	14.0	-89.03	517.8	-272.7	524.2	496.0	28.15	18.621		
5,600.0	5,548.6	5,555.3	5,456.9	15.8	14.3	-88.16	526.1	-287.3	539.1	510.5	28.59	18.852		
5,700.0	5,648.6	5,662.7	5,562.8	16.0	14.6	-87.26	535.2	-302.4	553.5	524.4	29.05	19.050		
5,800.0	5,748.6	5,780.1	5,679.2	16.1	14.9	-86.49	543.4	-315.6	565.2	535.6	29.54	19.134		
5,900.0	5,848.6	5,894.9	5,793.4	16.3	15.2	-85.98	549.1	-325.4	574.0	544.0	30.00	19.130		
6,000.0	5,948.6	6,006.9	5,905.2	16.5	15.5	-85.64	553.1	-332.3	580.4	549.9	30.46	19.055		
6,100.0	6,048.6	6,114.2	6,012.3	16.6	15.7	-94.52	555.3	-337.3	585.3	554.4	30.86	18.963		
6,200.0	6,147.8	6,222.5	6,120.6	16.7	16.0	-95.48	556.1	-340.9	589.7	558.6	31.12	18.952		
6,300.0	6,244.6	6,327.4	6,225.4	16.6	16.1	-97.54	555.6	-343.0	594.5	563.4	31.14	19.092		
6,400.0	6,337.4	6,428.2	6,326.2	16.5	16.2	-100.41	553.9	-343.8	601.4	570.4	30.95	19.432		
6,500.0	6,424.5	6,523.0	6,421.0	16.3	16.2	-103.73	551.5	-343.6	612.2	581.7	30.49	20.080		
6,600.0	6,504.5	6,609.1	6,507.0	16.0	16.2	-106.95	549.0	-342.7	629.5	599.7	29.86	21.084		
6,700.0	6,576.0	6,685.8	6,583.7	15.8	16.2	-109.59	546.3	-341.7	655.6	626.4	29.15	22.489		
6,800.0	6,637.8	6,754.4	6,652.3	15.6	16.2	-111.36	543.7	-340.5	691.8	663.3	28.54	24.242		
6,900.0	6,688.8	6,813.6	6,711.3	15.5	16.2	-111.87	541.1	-339.2	738.7	710.4	28.25	26.146		
7,000.0	6,728.1	6,861.1	6,758.8	15.5	16.2	-110.64	538.9	-338.0	796.0	767.4	28.54	27.888		
7,100.0	6,755.1	6,896.9	6,794.5	15.9	16.2	-107.30	537.1	-336.9	862.5	833.0	29.51	29.230		
7,200.0	6,769.3	6,919.5	6,817.1	16.5	16.2	-101.29	535.9	-336.2	936.8	905.7	31.01	30.204		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Ottenhoff 41-7B (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 482-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)			
0.0	0.0	0.0	0.0	0.0	0.0	104.10	-86.0	342.4	353.3					
100.0	100.0	88.3	88.3	0.1	0.1	104.11	-86.1	342.4	353.0	352.8	0.21	1,661.294		
200.0	200.0	188.7	188.7	0.3	0.2	104.17	-86.4	342.1	352.9	352.3	0.55	640.640		
300.0	300.0	289.1	289.1	0.6	0.3	104.28	-87.0	341.7	352.6	351.7	0.89	396.578		
400.0	400.0	389.5	389.5	0.8	0.4	104.43	-87.8	341.1	352.2	351.0	1.23	286.967		
500.0	500.0	490.0	490.0	1.0	0.6	104.62	-88.8	340.3	351.7	350.2	1.58	223.317		
600.0	600.0	591.6	591.6	1.2	0.8	104.96	-90.6	339.0	350.9	348.9	2.03	172.671		
700.0	700.0	691.1	691.0	1.5	1.0	105.48	-93.4	337.2	349.9	347.4	2.48	141.028		
800.0	800.0	788.6	788.5	1.7	1.2	106.08	-96.7	335.7	349.4	346.5	2.92	119.591		
900.0	900.0	887.1	886.9	1.9	1.5	81.27	-101.1	334.5	349.3	345.9	3.38	103.283		
938.5	938.5	925.0	924.7	2.0	1.6	81.80	-103.1	334.1	349.3	345.7	3.56	98.225 CC		
1,000.0	999.9	984.3	983.9	2.1	1.7	82.80	-106.6	333.4	349.4	345.5	3.83	91.236 ES		
1,100.0	1,099.7	1,079.3	1,078.7	2.4	1.9	84.67	-112.2	333.3	350.5	346.2	4.27	82.043		
1,200.0	1,199.3	1,174.0	1,173.2	2.6	2.1	86.85	-118.0	334.3	353.1	348.4	4.73	74.694		
1,300.0	1,298.6	1,271.0	1,269.9	2.8	2.4	89.55	-125.2	336.1	357.5	352.3	5.21	68.691		
1,400.0	1,397.5	1,365.5	1,364.1	3.1	2.6	92.55	-132.9	338.3	363.6	357.8	5.71	63.626		
1,500.0	1,496.1	1,463.1	1,461.4	3.4	2.9	95.91	-140.9	340.4	371.0	364.7	6.24	59.416		
1,600.0	1,594.2	1,561.3	1,559.2	3.8	3.1	99.50	-148.5	342.4	379.8	373.0	6.78	56.009		
1,700.0	1,692.3	1,660.7	1,658.3	4.1	3.3	103.03	-155.8	344.1	389.7	382.3	7.32	53.253		
1,800.0	1,790.4	1,751.5	1,748.8	4.5	3.5	106.19	-163.0	345.3	401.1	393.2	7.86	51.026		
1,900.0	1,888.5	1,839.7	1,836.6	4.9	3.8	109.20	-171.7	347.3	415.7	407.3	8.40	49.464		
2,000.0	1,986.5	1,929.4	1,925.8	5.2	4.0	111.90	-180.9	351.1	433.3	424.3	8.95	48.415		
2,100.0	2,084.6	2,017.9	2,013.6	5.6	4.3	114.43	-191.2	355.4	453.3	443.8	9.49	47.755		
2,200.0	2,182.7	2,100.8	2,095.5	6.0	4.5	116.69	-202.5	359.9	476.1	466.1	10.02	47.504		
2,300.0	2,280.8	2,182.4	2,175.9	6.4	4.8	118.67	-215.4	366.3	502.7	492.2	10.55	47.663		
2,400.0	2,378.9	2,269.0	2,260.8	6.8	5.1	120.47	-229.8	374.6	531.7	520.7	11.07	48.027		
2,500.0	2,476.9	2,355.5	2,345.4	7.2	5.4	121.95	-244.4	384.8	562.5	551.0	11.59	48.547		
2,600.0	2,575.0	2,441.6	2,429.3	7.6	5.8	123.02	-258.8	397.8	595.0	582.9	12.10	49.159		
2,700.0	2,673.1	2,530.0	2,515.2	8.0	6.1	123.81	-273.2	413.3	628.5	615.9	12.63	49.773		
2,800.0	2,771.2	2,617.3	2,599.8	8.4	6.5	124.49	-288.1	429.2	663.0	649.8	13.16	50.367		
2,900.0	2,869.3	2,704.7	2,684.2	8.9	6.9	125.10	-303.6	445.6	698.5	684.8	13.71	50.963		
3,000.0	2,967.3	2,800.6	2,776.7	9.3	7.3	125.64	-320.6	464.5	734.3	720.1	14.27	51.475		
3,100.0	3,065.4	2,912.3	2,884.8	9.7	7.7	126.25	-339.2	485.3	768.9	754.1	14.85	51.768		
3,200.0	3,163.5	3,002.0	2,971.8	10.1	8.1	126.70	-353.5	501.5	802.7	787.3	15.41	52.089		
3,300.0	3,261.6	3,104.1	3,071.0	10.5	8.5	127.16	-369.5	520.1	836.4	820.4	16.00	52.264		
3,400.0	3,359.7	3,215.9	3,179.9	10.9	9.0	127.66	-385.6	539.1	868.4	851.8	16.61	52.282		
3,500.0	3,457.7	3,323.2	3,284.9	11.3	9.4	128.11	-399.6	556.7	899.1	881.9	17.21	52.235		
3,600.0	3,555.8	3,420.7	3,380.5	11.8	9.8	128.54	-411.5	571.4	928.5	910.8	17.80	52.170		
3,700.0	3,653.9	3,498.3	3,456.5	12.2	10.1	128.86	-421.7	583.4	959.1	940.7	18.35	52.271		
3,800.0	3,752.0	3,568.0	3,524.4	12.6	10.4	129.17	-432.2	595.2	991.8	972.9	18.89	52.513		
7,100.0	6,755.1	6,840.4	6,746.5	15.9	21.2	-79.52	-746.5	953.6	960.8	926.7	34.09	28.187		
7,200.0	6,769.3	6,854.8	6,760.9	16.5	21.3	-86.85	-746.4	953.6	896.9	861.8	35.12	25.539		
7,300.0	6,771.4	6,856.3	6,762.4	17.3	21.3	-90.47	-746.4	953.6	839.3	803.4	35.84	23.419		
7,400.0	6,770.8	6,855.0	6,761.1	18.3	21.3	-90.37	-746.4	953.6	790.1	753.3	36.78	21.479		
7,500.0	6,770.1	6,853.7	6,759.8	19.4	21.3	-90.26	-746.4	953.6	751.1	713.2	37.88	19.830		
7,600.0	6,769.5	6,852.4	6,758.5	20.6	21.2	-90.16	-746.4	953.6	723.9	684.8	39.09	18.517		
7,700.0	6,768.9	6,851.2	6,757.3	22.0	21.2	-90.06	-746.5	953.6	709.8	669.4	40.41	17.567		
7,750.6	6,768.5	6,850.6	6,756.7	22.7	21.2	-90.01	-746.5	953.6	708.0	666.9	41.12	17.220		
7,800.0	6,768.2	6,849.9	6,756.0	23.4	21.2	-89.96	-746.5	953.6	709.8	668.0	41.81	16.976		
7,900.0	6,767.6	6,848.7	6,754.8	24.8	21.2	-89.86	-746.5	953.6	723.6	680.3	43.28	16.719 SF		
8,000.0	6,767.0	6,847.5	6,753.6	26.4	21.2	-89.76	-746.5	953.6	750.7	705.9	44.81	16.752		

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells Sec.29-T5N-R64W - Ottenhoff 41-7B (Exist) - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft	
Survey Program: 482-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)				
8,100.0	6,766.4	6,846.3	6,752.4	27.9	21.2	-89.66	-746.5	953.6	789.5	743.2	46.39	17.020			
8,200.0	6,765.7	6,845.1	6,751.2	29.6	21.2	-89.57	-746.5	953.6	838.6	790.6	48.01	17.468			
8,300.0	6,765.1	6,843.9	6,750.0	31.2	21.2	-89.47	-746.5	953.6	896.2	846.5	49.66	18.046			
8,400.0	6,764.5	6,842.8	6,748.9	32.9	21.2	-89.38	-746.5	953.6	960.7	909.4	51.34	18.712			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Roskop 29-1 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:		0.0 ft
Survey Program: 100-UNKNOWN													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
7,400.0	6,770.8	6,771.1	6,770.5	18.3	136.5	-97.39	-1,291.2	418.2	912.0	759.3	152.75	5.970			
7,500.0	6,770.1	6,768.5	6,767.9	19.4	136.4	-96.53	-1,291.2	418.2	814.1	659.9	154.14	5.281			
7,600.0	6,769.5	6,765.8	6,765.2	20.6	136.4	-95.65	-1,291.3	418.2	716.7	561.1	155.61	4.606			
7,700.0	6,768.9	6,763.2	6,762.6	22.0	136.3	-94.78	-1,291.4	418.2	620.1	463.0	157.15	3.946			
7,800.0	6,768.2	6,760.5	6,759.9	23.4	136.3	-93.91	-1,291.4	418.1	524.8	366.1	158.75	3.306			
7,900.0	6,767.6	6,757.8	6,757.3	24.8	136.2	-93.03	-1,291.5	418.1	431.7	271.3	160.38	2.692			
8,000.0	6,767.0	6,755.2	6,754.6	26.4	136.2	-92.15	-1,291.5	418.1	342.4	180.3	162.04	2.113			
8,100.0	6,766.4	6,752.5	6,751.9	27.9	136.2	-91.27	-1,291.6	418.1	260.9	97.2	163.71	1.594			
8,200.0	6,765.7	6,749.9	6,749.3	29.6	136.1	-90.39	-1,291.6	418.1	197.3	32.0	165.38	1.193	Level 2		
8,295.9	6,765.1	6,747.3	6,746.7	31.1	136.1	-89.54	-1,291.7	418.0	172.5	5.5	166.98	1.033	Level 2, CC		
8,300.0	6,765.1	6,747.2	6,746.6	31.2	136.1	-89.50	-1,291.7	418.0	172.6	5.5	167.05	1.033	Level 2, ES, SF		
8,400.0	6,764.5	6,744.6	6,744.0	32.9	136.0	-88.62	-1,291.7	418.0	201.5	32.8	168.71	1.194	Level 2		
8,500.0	6,763.8	6,741.9	6,741.3	34.6	136.0	-87.74	-1,291.8	418.0	267.2	96.9	170.36	1.569			
8,600.0	6,763.2	6,739.2	6,738.7	36.3	136.0	-86.86	-1,291.8	418.0	349.6	177.6	171.98	2.033			
8,700.0	6,762.6	6,736.6	6,736.0	38.0	135.9	-85.98	-1,291.9	418.0	439.3	265.7	173.58	2.531			
8,800.0	6,762.0	6,733.9	6,733.3	39.8	135.9	-85.10	-1,291.9	417.9	532.7	357.5	175.16	3.041			
8,900.0	6,761.3	6,731.3	6,730.7	41.6	135.8	-84.23	-1,292.0	417.9	628.1	451.4	176.71	3.554			
9,000.0	6,760.7	6,728.6	6,728.0	43.4	135.8	-83.35	-1,292.1	417.9	724.7	546.5	178.22	4.066			
9,100.0	6,760.1	6,726.0	6,725.4	45.2	135.7	-82.48	-1,292.1	417.9	822.2	642.5	179.71	4.575			
9,200.0	6,759.4	6,723.3	6,722.7	47.0	135.7	-81.62	-1,292.2	417.9	920.1	739.0	181.15	5.079			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #1 (3-14-16)													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 (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	-89.31	1.4	-120.1	120.1						
100.0	100.0	100.0	100.0	0.1	0.1	-89.31	1.4	-120.1	120.1	119.9	0.22	534.308			
200.0	200.0	200.0	200.0	0.3	0.3	-89.31	1.4	-120.1	120.1	119.4	0.67	178.103	CC, ES		
300.0	300.0	297.1	297.1	0.6	0.5	-89.13	1.8	-121.3	121.3	120.2	1.11	109.227			
400.0	400.0	394.0	394.0	0.8	0.8	-88.60	3.0	-124.7	124.9	123.4	1.55	80.610			
500.0	500.0	490.7	490.5	1.0	1.0	-87.79	5.0	-130.5	131.0	129.0	2.00	65.569			
600.0	600.0	587.1	586.4	1.2	1.2	-86.78	7.8	-138.6	139.5	137.0	2.45	56.833			
700.0	700.0	682.9	681.6	1.5	1.5	-85.64	11.3	-148.9	150.5	147.6	2.92	51.502			
800.0	800.0	778.1	775.9	1.7	1.8	-84.47	15.6	-161.4	163.9	160.5	3.40	48.218			
900.0	900.0	872.6	869.2	1.9	2.1	-109.21	20.6	-176.0	180.2	176.4	3.81	47.253			
1,000.0	999.9	966.2	961.0	2.1	2.5	-108.83	26.3	-192.5	199.8	195.5	4.28	46.722	SF		
1,100.0	1,099.7	1,058.5	1,051.3	2.4	2.9	-108.92	32.7	-211.0	222.5	217.8	4.75	46.886			
1,200.0	1,199.3	1,149.6	1,139.9	2.6	3.3	-109.32	39.6	-231.2	248.3	243.1	5.23	47.505			
1,300.0	1,298.6	1,239.3	1,226.5	2.8	3.8	-109.91	47.1	-253.0	277.3	271.6	5.73	48.415			
1,400.0	1,397.5	1,327.3	1,311.0	3.1	4.3	-110.59	55.1	-276.3	309.3	303.1	6.25	49.494			
1,500.0	1,496.1	1,413.5	1,393.2	3.4	4.8	-111.30	63.5	-300.9	344.4	337.6	6.80	50.652			
1,600.0	1,594.2	1,500.0	1,475.0	3.8	5.3	-112.27	72.6	-327.3	382.5	375.1	7.39	51.752			
1,700.0	1,692.3	1,587.7	1,557.6	4.1	5.9	-113.29	82.2	-355.3	422.1	414.1	8.01	52.667			
1,800.0	1,790.4	1,679.2	1,643.7	4.5	6.6	-114.18	92.3	-384.6	461.9	453.2	8.66	53.326			
1,900.0	1,888.5	1,770.8	1,729.9	4.9	7.2	-114.93	102.3	-413.8	501.8	492.5	9.32	53.812			
2,000.0	1,986.5	1,862.3	1,816.0	5.2	7.8	-115.57	112.4	-443.1	541.7	531.7	10.00	54.171			
2,100.0	2,084.6	1,953.8	1,902.1	5.6	8.5	-116.12	122.4	-472.4	581.7	571.0	10.69	54.435			
2,200.0	2,182.7	2,045.3	1,988.3	6.0	9.1	-116.60	132.5	-501.6	621.7	610.4	11.38	54.630			
2,300.0	2,280.8	2,136.9	2,074.4	6.4	9.8	-117.03	142.6	-530.9	661.8	649.7	12.08	54.773			
2,400.0	2,378.9	2,228.4	2,160.5	6.8	10.4	-117.40	152.6	-560.2	701.9	689.1	12.79	54.876			
2,500.0	2,476.9	2,319.9	2,246.7	7.2	11.1	-117.73	162.7	-589.5	742.0	728.5	13.50	54.950			
2,600.0	2,575.0	2,411.4	2,332.8	7.6	11.7	-118.03	172.7	-618.7	782.1	767.9	14.22	55.001			
2,700.0	2,673.1	2,502.9	2,418.9	8.0	12.4	-118.31	182.8	-648.0	822.3	807.3	14.94	55.035			
2,800.0	2,771.2	2,594.5	2,505.1	8.4	13.0	-118.55	192.8	-677.3	862.4	846.8	15.67	55.054			
2,900.0	2,869.3	2,686.0	2,591.2	8.9	13.7	-118.77	202.9	-706.5	902.6	886.2	16.39	55.064			
3,000.0	2,967.3	2,777.5	2,677.3	9.3	14.3	-118.98	212.9	-735.8	942.8	925.7	17.12	55.066			
3,100.0	3,065.4	2,869.0	2,763.5	9.7	15.0	-119.17	223.0	-765.1	983.0	965.1	17.85	55.061			



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-323 - Wellbore #1 - Plan #1 (3-14-16)													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 (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	-89.31	1.1	-90.0	90.0	90.0	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-89.31	1.1	-90.0	90.0	89.8	0.23	396.457		
200.0	200.0	201.0	201.0	0.3	0.3	-89.31	1.1	-90.0	90.0	89.3	0.68	133.030		
300.0	300.0	301.0	301.0	0.6	0.6	-89.31	1.1	-90.0	90.0	88.9	1.13	79.924		
400.0	400.0	401.0	401.0	0.8	0.8	-89.31	1.1	-90.0	90.0	88.4	1.58	57.121		
500.0	500.0	501.0	501.0	1.0	1.0	-89.31	1.1	-90.0	90.0	88.0	2.03	44.442		
600.0	600.0	601.0	601.0	1.2	1.2	-89.31	1.1	-90.0	90.0	87.5	2.47	36.369		
700.0	700.0	701.0	701.0	1.5	1.5	-89.31	1.1	-90.0	90.0	87.1	2.92	30.778		
766.3	766.3	767.3	767.3	1.6	1.6	-89.31	1.1	-90.0	90.0	86.8	3.22	27.930 CC		
800.0	800.0	800.0	800.0	1.7	1.7	-89.31	1.1	-90.0	90.0	86.6	3.37	26.696 ES		
900.0	900.0	898.9	898.8	1.9	1.9	-115.43	1.6	-91.1	91.7	87.9	3.81	24.084		
1,000.0	999.9	996.5	996.4	2.1	2.1	-116.46	3.3	-94.6	96.9	92.7	4.24	22.857		
1,100.0	1,099.7	1,093.8	1,093.5	2.4	2.3	-117.93	6.0	-100.2	105.6	101.0	4.68	22.571 SF		
1,200.0	1,199.3	1,190.5	1,189.8	2.6	2.6	-119.62	9.7	-108.0	117.9	112.8	5.13	22.979		
1,300.0	1,298.6	1,286.5	1,285.1	2.8	2.8	-121.31	14.4	-117.9	133.7	128.1	5.60	23.896		
1,400.0	1,397.5	1,381.5	1,379.2	3.1	3.1	-122.86	20.2	-129.8	153.1	147.0	6.08	25.178		
1,500.0	1,496.1	1,475.3	1,471.8	3.4	3.4	-124.22	26.8	-143.7	176.1	169.5	6.59	26.709		
1,600.0	1,594.2	1,568.0	1,562.9	3.8	3.7	-125.45	34.3	-159.4	202.3	195.2	7.13	28.367		
1,700.0	1,692.3	1,659.7	1,652.5	4.1	4.0	-126.24	42.7	-176.9	230.6	222.9	7.70	29.964		
1,800.0	1,790.4	1,750.4	1,740.7	4.5	4.4	-126.55	51.9	-196.1	260.8	252.5	8.29	31.482		
1,900.0	1,888.5	1,840.1	1,827.3	4.9	4.8	-126.52	61.9	-216.9	292.8	283.9	8.90	32.907		
2,000.0	1,986.5	1,934.1	1,917.8	5.2	5.3	-126.36	72.9	-239.8	325.7	316.2	9.54	34.147		
2,100.0	2,084.6	2,028.6	2,008.7	5.6	5.7	-126.22	83.9	-262.9	358.7	348.5	10.19	35.190		
2,200.0	2,182.7	2,123.0	2,099.6	6.0	6.2	-126.11	94.9	-285.9	391.6	380.8	10.86	36.068		
2,300.0	2,280.8	2,217.4	2,190.5	6.4	6.7	-126.01	105.9	-308.9	424.6	413.1	11.53	36.813		
2,400.0	2,378.9	2,311.8	2,281.4	6.8	7.2	-125.93	117.0	-331.9	457.6	445.3	12.22	37.450		
2,500.0	2,476.9	2,406.2	2,372.3	7.2	7.7	-125.86	128.0	-355.0	490.5	477.6	12.91	38.000		
2,600.0	2,575.0	2,500.6	2,463.2	7.6	8.2	-125.80	139.0	-378.0	523.5	509.9	13.60	38.477		
2,700.0	2,673.1	2,595.0	2,554.1	8.0	8.8	-125.75	150.0	-401.0	556.4	542.1	14.31	38.894		
2,800.0	2,771.2	2,689.4	2,645.0	8.4	9.3	-125.70	161.1	-424.0	589.4	574.4	15.01	39.261		
2,900.0	2,869.3	2,783.8	2,735.9	8.9	9.8	-125.66	172.1	-447.0	622.3	606.6	15.72	39.586		
3,000.0	2,967.3	2,878.3	2,826.8	9.3	10.3	-125.62	183.1	-470.1	655.3	638.9	16.43	39.875		
3,100.0	3,065.4	2,972.7	2,917.7	9.7	10.9	-125.58	194.2	-493.1	688.3	671.1	17.15	40.133		
3,200.0	3,163.5	3,067.1	3,008.6	10.1	11.4	-125.55	205.2	-516.1	721.2	703.4	17.87	40.365		
3,300.0	3,261.6	3,161.5	3,099.5	10.5	11.9	-125.52	216.2	-539.1	754.2	735.6	18.59	40.575		
3,400.0	3,359.7	3,255.9	3,190.4	10.9	12.4	-125.49	227.2	-562.2	787.1	767.8	19.31	40.765		
3,500.0	3,457.7	3,350.3	3,281.3	11.3	13.0	-125.47	238.3	-585.2	820.1	800.1	20.03	40.937		
3,600.0	3,555.8	3,444.7	3,372.2	11.8	13.5	-125.45	249.3	-608.2	853.1	832.3	20.76	41.095		
3,700.0	3,653.9	3,539.1	3,463.1	12.2	14.0	-125.43	260.3	-631.2	886.0	864.5	21.48	41.239		
3,800.0	3,752.0	3,633.6	3,554.0	12.6	14.6	-125.47	271.3	-654.3	919.0	896.7	22.22	41.361		
3,900.0	3,850.4	3,728.3	3,645.2	12.9	15.1	-125.88	282.4	-677.4	950.8	927.8	22.94	41.442		
4,000.0	3,949.5	3,823.7	3,737.0	13.2	15.7	-126.10	293.5	-700.6	980.6	957.0	23.63	41.500		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #1 (3-14-16)											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			
(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	-89.41	1.1	-105.0	105.0						
100.0	100.0	100.0	100.0	0.1	0.1	-89.41	1.1	-105.0	105.0	104.8	0.22	467.356			
200.0	200.0	200.0	200.0	0.3	0.3	-89.41	1.1	-105.0	105.0	104.4	0.67	155.785			
300.0	300.0	300.0	300.0	0.6	0.6	-89.41	1.1	-105.0	105.0	103.9	1.12	93.471			
400.0	400.0	400.0	400.0	0.8	0.8	-89.41	1.1	-105.0	105.0	103.5	1.57	66.765	CC, ES		
500.0	500.0	497.5	497.5	1.0	1.0	-89.16	1.6	-106.2	106.2	104.2	2.01	52.861			
600.0	600.0	594.8	594.7	1.2	1.2	-88.47	2.9	-109.7	109.8	107.4	2.45	44.913			
700.0	700.0	691.9	691.6	1.5	1.4	-87.40	5.2	-115.4	115.8	112.9	2.89	40.103			
800.0	800.0	788.7	788.0	1.7	1.7	-86.09	8.4	-123.4	124.3	120.9	3.34	37.212			
900.0	900.0	884.9	883.6	1.9	1.9	-110.75	12.5	-133.6	135.6	131.8	3.78	35.878			
1,000.0	999.9	980.4	978.1	2.1	2.2	-110.41	17.4	-145.9	150.3	146.1	4.23	35.517	SF		
1,100.0	1,099.7	1,074.9	1,071.4	2.4	2.5	-110.63	23.2	-160.3	168.2	163.6	4.69	35.858			
1,200.0	1,199.3	1,168.5	1,163.3	2.6	2.9	-111.21	29.7	-176.6	189.4	184.3	5.17	36.673			
1,300.0	1,298.6	1,260.7	1,253.5	2.8	3.3	-112.01	37.0	-194.7	213.8	208.2	5.66	37.798			
1,400.0	1,397.5	1,351.6	1,341.8	3.1	3.7	-112.90	44.9	-214.5	241.5	235.3	6.17	39.115			
1,500.0	1,496.1	1,440.9	1,428.1	3.4	4.1	-113.80	53.4	-235.9	272.4	265.6	6.72	40.537			
1,600.0	1,594.2	1,531.2	1,514.8	3.8	4.6	-114.90	62.8	-259.3	306.1	298.8	7.31	41.878			
1,700.0	1,692.3	1,624.9	1,604.7	4.1	5.1	-116.05	72.6	-283.8	340.5	332.6	7.92	42.969			
1,800.0	1,790.4	1,718.6	1,694.6	4.5	5.6	-116.99	82.5	-308.4	375.0	366.4	8.56	43.810			
1,900.0	1,888.5	1,812.4	1,784.5	4.9	6.2	-117.77	92.3	-333.0	409.5	400.3	9.21	44.467			
2,000.0	1,986.5	1,906.1	1,874.4	5.2	6.7	-118.43	102.1	-357.5	444.1	434.3	9.87	44.987			
2,100.0	2,084.6	1,999.8	1,964.3	5.6	7.2	-118.99	111.9	-382.1	478.8	468.2	10.55	45.402			
2,200.0	2,182.7	2,093.5	2,054.2	6.0	7.8	-119.48	121.8	-406.7	513.5	502.2	11.23	45.736			
2,300.0	2,280.8	2,187.2	2,144.1	6.4	8.3	-119.91	131.6	-431.3	548.2	536.3	11.91	46.009			
2,400.0	2,378.9	2,280.9	2,234.0	6.8	8.9	-120.28	141.4	-455.8	582.9	570.3	12.61	46.232			
2,500.0	2,476.9	2,374.6	2,323.9	7.2	9.4	-120.62	151.3	-480.4	617.7	604.4	13.31	46.417			
2,600.0	2,575.0	2,468.3	2,413.8	7.6	10.0	-120.91	161.1	-505.0	652.4	638.4	14.01	46.571			
2,700.0	2,673.1	2,562.0	2,503.6	8.0	10.5	-121.18	170.9	-529.5	687.2	672.5	14.72	46.700			
2,800.0	2,771.2	2,655.7	2,593.5	8.4	11.1	-121.42	180.7	-554.1	722.0	706.6	15.43	46.809			
2,900.0	2,869.3	2,749.4	2,683.4	8.9	11.7	-121.64	190.6	-578.7	756.8	740.7	16.14	46.901			
3,000.0	2,967.3	2,843.1	2,773.3	9.3	12.2	-121.84	200.4	-603.2	791.7	774.8	16.85	46.980			
3,100.0	3,065.4	2,936.8	2,863.2	9.7	12.8	-122.03	210.2	-627.8	826.5	808.9	17.57	47.047			
3,200.0	3,163.5	3,030.6	2,953.1	10.1	13.3	-122.20	220.1	-652.4	861.3	843.0	18.29	47.105			
3,300.0	3,261.6	3,124.3	3,043.0	10.5	13.9	-122.35	229.9	-677.0	896.2	877.2	19.00	47.154			
3,400.0	3,359.7	3,218.0	3,132.9	10.9	14.5	-122.50	239.7	-701.5	931.0	911.3	19.73	47.197			
3,500.0	3,457.7	3,311.7	3,222.8	11.3	15.0	-122.63	249.6	-726.1	965.9	945.4	20.45	47.235			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #1 (3-14-16)													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			
(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	-89.31	0.7	-59.9	59.9						
100.0	100.0	100.0	100.0	0.1	0.1	-89.31	0.7	-59.9	59.9	59.7	0.22	266.535			
200.0	200.0	200.0	200.0	0.3	0.3	-89.31	0.7	-59.9	59.9	59.2	0.67	88.845			
300.0	300.0	300.0	300.0	0.6	0.6	-89.31	0.7	-59.9	59.9	58.8	1.12	53.307			
400.0	400.0	400.0	400.0	0.8	0.8	-89.31	0.7	-59.9	59.9	58.3	1.57	38.076			
500.0	500.0	500.0	500.0	1.0	1.0	-89.31	0.7	-59.9	59.9	57.9	2.02	29.615			
600.0	600.0	600.0	600.0	1.2	1.2	-89.31	0.7	-59.9	59.9	57.4	2.47	24.230			
700.0	700.0	700.0	700.0	1.5	1.5	-89.31	0.7	-59.9	59.9	57.0	2.92	20.503			
800.0	800.0	800.0	800.0	1.7	1.7	-89.31	0.7	-59.9	59.9	56.5	3.37	17.769	CC, ES		
900.0	900.0	900.0	900.0	1.9	1.9	-116.18	0.7	-59.9	60.5	56.7	3.82	15.834			
1,000.0	999.9	999.9	999.9	2.1	2.1	-119.39	0.7	-59.9	62.3	58.0	4.27	14.605			
1,100.0	1,099.7	1,099.7	1,099.7	2.4	2.4	-124.31	0.7	-59.9	65.8	61.1	4.72	13.947			
1,200.0	1,199.3	1,199.3	1,199.3	2.6	2.6	-130.31	0.7	-59.9	71.3	66.2	5.17	13.801			
1,300.0	1,298.6	1,297.6	1,297.6	2.8	2.8	-135.83	1.5	-60.9	80.1	74.5	5.62	14.248			
1,400.0	1,397.5	1,395.6	1,395.5	3.1	3.0	-139.80	4.0	-63.7	92.5	86.4	6.07	15.233			
1,500.0	1,496.1	1,493.2	1,492.9	3.4	3.2	-142.35	8.0	-68.5	108.3	101.8	6.53	16.576			
1,600.0	1,594.2	1,590.3	1,589.6	3.8	3.5	-143.83	13.7	-75.1	127.0	120.0	7.01	18.107			
1,700.0	1,692.3	1,687.1	1,685.8	4.1	3.7	-144.14	20.9	-83.5	146.9	139.4	7.52	19.534			
1,800.0	1,790.4	1,783.5	1,781.2	4.5	4.0	-143.57	29.6	-93.7	167.7	159.6	8.05	20.821			
1,900.0	1,888.5	1,879.4	1,875.8	4.9	4.2	-142.44	39.8	-105.8	189.3	180.7	8.61	21.979			
2,000.0	1,986.5	1,974.8	1,969.5	5.2	4.5	-140.93	51.5	-119.5	212.1	202.8	9.21	23.027			
2,100.0	2,084.6	2,071.8	2,064.6	5.6	4.9	-139.43	64.2	-134.3	235.4	225.5	9.83	23.932			
2,200.0	2,182.7	2,168.9	2,159.7	6.0	5.2	-138.20	76.8	-149.1	258.8	248.3	10.48	24.702			
2,300.0	2,280.8	2,266.0	2,254.8	6.4	5.6	-137.17	89.5	-163.9	282.3	271.2	11.13	25.366			
2,400.0	2,378.9	2,363.1	2,349.9	6.8	5.9	-136.30	102.1	-178.8	305.9	294.1	11.79	25.940			
2,500.0	2,476.9	2,460.2	2,445.0	7.2	6.3	-135.56	114.7	-193.6	329.6	317.1	12.47	26.438			
2,600.0	2,575.0	2,557.2	2,540.1	7.6	6.7	-134.92	127.4	-208.4	353.3	340.1	13.15	26.875			
2,700.0	2,673.1	2,654.3	2,635.2	8.0	7.1	-134.35	140.0	-223.2	377.0	363.2	13.83	27.259			
2,800.0	2,771.2	2,751.4	2,730.3	8.4	7.5	-133.86	152.7	-238.0	400.8	386.3	14.52	27.599			
2,900.0	2,869.3	2,848.5	2,825.4	8.9	7.9	-133.42	165.3	-252.8	424.6	409.4	15.22	27.901			
3,000.0	2,967.3	2,945.6	2,920.5	9.3	8.3	-133.02	177.9	-267.7	448.4	432.5	15.92	28.172			
3,100.0	3,065.4	3,042.6	3,015.6	9.7	8.7	-132.67	190.6	-282.5	472.2	455.6	16.62	28.416			
3,200.0	3,163.5	3,139.7	3,110.7	10.1	9.1	-132.35	203.2	-297.3	496.1	478.8	17.32	28.635			
3,300.0	3,261.6	3,236.8	3,205.8	10.5	9.5	-132.06	215.8	-312.1	519.9	501.9	18.03	28.835			
3,400.0	3,359.7	3,333.9	3,300.9	10.9	9.9	-131.79	228.5	-326.9	543.8	525.1	18.74	29.016			
3,500.0	3,457.7	3,430.9	3,396.0	11.3	10.3	-131.55	241.1	-341.8	567.7	548.2	19.45	29.182			
3,600.0	3,555.8	3,528.0	3,491.1	11.8	10.7	-131.32	253.8	-356.6	591.6	571.4	20.17	29.333			
3,700.0	3,653.9	3,625.1	3,586.3	12.2	11.1	-131.12	266.4	-371.4	615.5	594.6	20.88	29.473			
3,800.0	3,752.0	3,722.2	3,681.4	12.6	11.5	-130.97	279.0	-386.2	639.4	617.8	21.60	29.599			
3,900.0	3,850.4	3,819.5	3,776.7	12.9	11.9	-130.99	291.7	-401.1	661.9	639.7	22.28	29.707			
4,000.0	3,949.5	3,917.3	3,872.5	13.2	12.4	-130.78	304.4	-416.0	682.3	659.4	22.94	29.749			
4,100.0	4,048.9	4,015.2	3,968.4	13.4	12.8	-130.35	317.2	-430.9	700.5	677.0	23.56	29.738			
4,200.0	4,148.7	4,113.3	4,064.5	13.6	13.2	-129.71	330.0	-445.9	716.6	692.5	24.14	29.686			
4,300.0	4,248.6	4,211.4	4,160.6	13.8	13.6	-128.87	342.7	-460.9	730.7	706.1	24.68	29.605			
4,400.0	4,348.6	4,309.4	4,256.6	13.9	14.1	-102.01	355.5	-475.8	743.2	718.0	25.19	29.501			
4,500.0	4,448.6	4,407.3	4,352.6	14.1	14.5	-100.82	368.2	-490.8	755.8	730.1	25.71	29.397			
4,600.0	4,548.6	4,505.3	4,448.5	14.2	14.9	-99.67	381.0	-505.7	768.6	742.4	26.22	29.318			
4,700.0	4,648.6	4,603.3	4,544.5	14.4	15.3	-98.55	393.8	-520.7	781.8	755.1	26.72	29.261			
4,800.0	4,748.6	4,701.2	4,640.5	14.5	15.8	-97.47	406.5	-535.6	795.3	768.0	27.21	29.224			
4,900.0	4,848.6	4,799.2	4,736.5	14.7	16.2	-96.43	419.3	-550.6	809.0	781.3	27.70	29.206			
5,000.0	4,948.6	4,897.2	4,832.4	14.8	16.6	-95.42	432.0	-565.6	823.0	794.8	28.18	29.203			

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #1 (3-14-16)											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)						
5,100.0	5,048.6	4,995.1	4,928.4	15.0	17.0	-94.45	444.8	-580.5	837.2	808.6	28.66	29.214					
5,200.0	5,148.6	5,093.1	5,024.4	15.1	17.5	-93.50	457.5	-595.5	851.7	822.5	29.13	29.239					
5,300.0	5,248.6	5,191.1	5,120.4	15.3	17.9	-92.59	470.3	-610.4	866.4	836.8	29.59	29.274					
5,400.0	5,348.6	5,316.7	5,244.0	15.5	18.3	-91.57	485.0	-627.7	879.8	849.8	30.05	29.275					
5,500.0	5,448.6	5,445.7	5,371.7	15.6	18.6	-90.81	496.5	-641.1	890.1	859.6	30.49	29.196					
5,600.0	5,548.6	5,576.0	5,501.4	15.8	18.9	-90.30	504.3	-650.3	897.0	866.1	30.90	29.034					
5,700.0	5,648.6	5,707.1	5,632.4	16.0	19.2	-90.05	508.2	-654.9	900.6	869.3	31.28	28.788					
5,800.0	5,748.6	5,823.3	5,748.6	16.1	19.3	-90.02	508.7	-655.5	901.0	869.4	31.63	28.482					
5,900.0	5,848.6	5,923.3	5,848.6	16.3	19.4	-90.02	508.7	-655.5	901.0	869.1	31.98	28.178					
5,933.5	5,882.1	5,956.8	5,882.1	16.4	19.5	-90.03	508.5	-655.5	901.0	868.9	32.09	28.082					
6,000.0	5,948.6	6,022.9	5,948.0	16.5	19.5	-90.32	504.0	-655.5	901.0	868.8	32.27	27.920					
6,100.0	6,048.6	6,119.9	6,043.5	16.6	19.5	88.66	487.1	-655.5	901.3	868.8	32.48	27.745					
6,200.0	6,147.8	6,214.5	6,133.8	16.7	19.5	87.53	459.1	-655.5	901.9	869.4	32.49	27.760					
6,300.0	6,244.6	6,307.2	6,218.2	16.6	19.3	86.45	421.1	-655.5	902.8	870.5	32.31	27.939					
6,400.0	6,337.4	6,400.0	6,297.6	16.5	19.1	85.41	373.1	-655.5	904.0	872.0	32.00	28.253					
6,500.0	6,424.5	6,487.6	6,366.6	16.3	19.0	84.49	319.2	-655.5	905.3	873.7	31.61	28.641					
6,600.0	6,504.5	6,575.8	6,429.4	16.0	18.7	83.64	257.4	-655.5	906.7	875.5	31.21	29.050					
6,700.0	6,576.0	6,662.8	6,484.0	15.8	18.5	82.89	189.7	-655.5	908.1	877.2	30.89	29.396					
6,800.0	6,637.8	6,750.0	6,530.6	15.6	18.4	82.24	116.1	-655.5	909.4	878.7	30.73	29.590					
6,900.0	6,688.8	6,834.4	6,567.5	15.5	18.2	81.72	40.2	-655.5	910.6	879.7	30.83	29.536					
7,000.0	6,728.1	6,919.2	6,595.9	15.5	18.1	81.32	-39.7	-655.5	911.5	880.3	31.23	29.185					
7,100.0	6,755.1	7,000.0	6,614.6	15.9	18.0	81.05	-118.3	-655.5	912.2	880.2	31.96	28.540					
7,200.0	6,769.3	7,087.8	6,625.3	16.5	18.2	80.90	-205.3	-655.5	912.5	879.4	33.09	27.576					
7,300.0	6,771.4	7,178.1	6,626.9	17.3	18.6	80.89	-295.6	-655.5	912.5	878.0	34.58	26.392					
7,400.0	6,770.8	7,278.1	6,626.7	18.3	19.5	80.92	-395.6	-655.5	912.5	876.0	36.45	25.032					
7,500.0	6,770.1	7,378.1	6,626.6	19.4	20.6	80.95	-495.6	-655.5	912.4	873.8	38.61	23.633					
7,600.0	6,769.5	7,478.1	6,626.5	20.6	21.8	80.98	-595.6	-655.5	912.3	871.3	41.00	22.251					
7,700.0	6,768.9	7,578.1	6,626.3	22.0	23.0	81.01	-695.6	-655.5	912.2	868.6	43.60	20.925					
7,800.0	6,768.2	7,678.1	6,626.2	23.4	24.4	81.04	-795.6	-655.5	912.2	865.8	46.36	19.677					
7,900.0	6,767.6	7,778.1	6,626.0	24.8	25.9	81.07	-895.6	-655.5	912.1	862.8	49.26	18.516					
8,000.0	6,767.0	7,878.1	6,625.9	26.4	27.4	81.10	-995.6	-655.5	912.0	859.7	52.28	17.446					
8,100.0	6,766.4	7,978.1	6,625.8	27.9	28.9	81.13	-1,095.6	-655.5	911.9	856.5	55.39	16.464					
8,200.0	6,765.7	8,078.1	6,625.6	29.6	30.5	81.16	-1,195.6	-655.5	911.9	853.3	58.59	15.565					
8,300.0	6,765.1	8,178.1	6,625.5	31.2	32.1	81.19	-1,295.6	-655.5	911.8	849.9	61.85	14.742					
8,400.0	6,764.5	8,278.1	6,625.3	32.9	33.7	81.22	-1,395.6	-655.5	911.7	846.5	65.17	13.989					
8,500.0	6,763.8	8,378.1	6,625.2	34.6	35.4	81.25	-1,495.6	-655.5	911.6	843.1	68.55	13.299					
8,600.0	6,763.2	8,478.1	6,625.1	36.3	37.1	81.28	-1,595.6	-655.5	911.6	839.6	71.97	12.666					
8,700.0	6,762.6	8,578.1	6,624.9	38.0	38.8	81.31	-1,695.6	-655.5	911.5	836.1	75.42	12.085					
8,800.0	6,762.0	8,678.1	6,624.8	39.8	40.6	81.34	-1,795.6	-655.5	911.4	832.5	78.91	11.550					
8,900.0	6,761.3	8,778.1	6,624.6	41.6	42.3	81.37	-1,895.6	-655.5	911.3	828.9	82.43	11.056					
9,000.0	6,760.7	8,878.1	6,624.5	43.4	44.1	81.40	-1,995.6	-655.5	911.3	825.3	85.97	10.600					
9,100.0	6,760.1	8,978.1	6,624.4	45.2	45.8	81.43	-2,095.6	-655.5	911.2	821.7	89.53	10.177					
9,200.0	6,759.4	9,078.1	6,624.2	47.0	47.6	81.47	-2,195.6	-655.5	911.1	818.0	93.12	9.785					
9,300.0	6,758.8	9,178.1	6,624.1	48.8	49.4	81.50	-2,295.6	-655.5	911.1	814.3	96.72	9.420					
9,400.0	6,758.2	9,278.1	6,623.9	50.6	51.2	81.53	-2,395.6	-655.5	911.0	810.6	100.34	9.079					
9,500.0	6,757.6	9,378.1	6,623.8	52.4	53.0	81.56	-2,495.6	-655.5	910.9	806.9	103.97	8.762					
9,600.0	6,756.9	9,478.1	6,623.7	54.3	54.8	81.59	-2,595.6	-655.5	910.8	803.2	107.61	8.464					
9,700.0	6,756.3	9,578.1	6,623.5	56.1	56.7	81.62	-2,695.6	-655.5	910.8	799.5	111.27	8.185					
9,800.0	6,755.7	9,678.1	6,623.4	57.9	58.5	81.65	-2,795.6	-655.5	910.7	795.8	114.93	7.924					
9,900.0	6,755.0	9,778.1	6,623.2	59.8	60.3	81.68	-2,895.6	-655.5	910.6	792.0	118.61	7.678					

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #1 (3-14-16)													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 (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,000.0	6,754.4	9,878.1	6,623.1	61.6	62.2	81.71	-2,995.6	-655.5	910.6	788.3	122.29	7.446		
10,100.0	6,753.8	9,978.1	6,623.0	63.5	64.0	81.74	-3,095.6	-655.5	910.5	784.5	125.99	7.227		
10,200.0	6,753.2	10,078.1	6,622.8	65.4	65.9	81.77	-3,195.6	-655.5	910.4	780.7	129.69	7.020		
10,300.0	6,752.5	10,178.1	6,622.7	67.2	67.7	81.80	-3,295.6	-655.5	910.3	777.0	133.39	6.825		
10,400.0	6,751.9	10,278.1	6,622.5	69.1	69.6	81.83	-3,395.6	-655.5	910.3	773.2	137.11	6.639		
10,500.0	6,751.3	10,378.1	6,622.4	71.0	71.4	81.86	-3,495.6	-655.5	910.2	769.4	140.82	6.463		
10,600.0	6,750.6	10,478.1	6,622.3	72.8	73.3	81.89	-3,595.6	-655.5	910.1	765.6	144.55	6.296		
10,700.0	6,750.0	10,578.1	6,622.1	74.7	75.2	81.92	-3,695.6	-655.5	910.1	761.8	148.28	6.138		
10,800.0	6,749.4	10,678.1	6,622.0	76.6	77.0	81.95	-3,795.6	-655.5	910.0	758.0	152.01	5.986		
10,900.0	6,748.8	10,778.1	6,621.8	78.5	78.9	81.98	-3,895.6	-655.5	909.9	754.2	155.75	5.842		
11,000.0	6,748.1	10,878.1	6,621.7	80.4	80.8	82.01	-3,995.6	-655.5	909.9	750.4	159.49	5.705		
11,100.0	6,747.5	10,978.1	6,621.6	82.2	82.7	82.04	-4,095.6	-655.5	909.8	746.6	163.24	5.573		
11,200.0	6,746.9	11,078.1	6,621.4	84.1	84.5	82.07	-4,195.6	-655.5	909.7	742.7	166.99	5.448		
11,300.0	6,746.2	11,178.1	6,621.3	86.0	86.4	82.10	-4,295.6	-655.5	909.7	738.9	170.74	5.328		
11,400.0	6,745.6	11,278.1	6,621.1	87.9	88.3	82.13	-4,395.6	-655.5	909.6	735.1	174.50	5.213		
11,500.0	6,745.0	11,378.1	6,621.0	89.8	90.2	82.17	-4,495.6	-655.5	909.5	731.3	178.26	5.102		
11,600.0	6,744.4	11,478.1	6,620.9	91.7	92.1	82.20	-4,595.6	-655.5	909.5	727.4	182.02	4.996		
11,700.0	6,743.7	11,578.1	6,620.7	93.6	93.9	82.23	-4,695.6	-655.5	909.4	723.6	185.79	4.895		
11,800.0	6,743.1	11,678.1	6,620.6	95.5	95.8	82.26	-4,795.6	-655.5	909.3	719.8	189.56	4.797		
11,900.0	6,742.5	11,778.1	6,620.5	97.4	97.7	82.29	-4,895.6	-655.5	909.3	715.9	193.33	4.703		
12,000.0	6,741.8	11,878.1	6,620.3	99.3	99.6	82.32	-4,995.6	-655.5	909.2	712.1	197.10	4.613		
12,100.0	6,741.2	11,978.1	6,620.2	101.2	101.5	82.35	-5,095.6	-655.5	909.1	708.3	200.87	4.526		
12,200.0	6,740.6	12,078.1	6,620.0	103.1	103.4	82.38	-5,195.6	-655.5	909.1	704.4	204.65	4.442		
12,300.0	6,740.0	12,178.1	6,619.9	104.9	105.3	82.41	-5,295.6	-655.5	909.0	700.6	208.43	4.361		
12,400.0	6,739.3	12,278.1	6,619.8	106.8	107.2	82.44	-5,395.6	-655.5	908.9	696.7	212.21	4.283		
12,500.0	6,738.7	12,378.1	6,619.6	108.7	109.1	82.47	-5,495.6	-655.5	908.9	692.9	216.00	4.208		
12,600.0	6,738.1	12,478.1	6,619.5	110.6	111.0	82.50	-5,595.6	-655.5	908.8	689.0	219.78	4.135		
12,700.0	6,737.5	12,578.1	6,619.3	112.5	112.9	82.53	-5,695.6	-655.5	908.8	685.2	223.57	4.065		
12,800.0	6,736.8	12,678.1	6,619.2	114.4	114.8	82.56	-5,795.6	-655.5	908.7	681.3	227.35	3.997		
12,900.0	6,736.2	12,778.1	6,619.1	116.4	116.7	82.59	-5,895.6	-655.5	908.6	677.5	231.14	3.931		
13,000.0	6,735.6	12,878.1	6,618.9	118.3	118.6	82.62	-5,995.6	-655.5	908.6	673.6	234.94	3.867		
13,100.0	6,734.9	12,978.1	6,618.8	120.2	120.5	82.65	-6,095.6	-655.5	908.5	669.8	238.73	3.806		
13,200.0	6,734.3	13,078.1	6,618.6	122.1	122.4	82.68	-6,195.6	-655.5	908.4	665.9	242.52	3.746		
13,300.0	6,733.7	13,178.1	6,618.5	124.0	124.3	82.72	-6,295.6	-655.5	908.4	662.1	246.32	3.688		
13,400.0	6,733.1	13,278.1	6,618.4	125.9	126.2	82.75	-6,395.6	-655.5	908.3	658.2	250.12	3.632		
13,500.0	6,732.4	13,378.1	6,618.2	127.8	128.1	82.78	-6,495.6	-655.5	908.3	654.3	253.91	3.577		
13,600.0	6,731.8	13,478.1	6,618.1	129.7	130.0	82.81	-6,595.6	-655.5	908.2	650.5	257.71	3.524		
13,700.0	6,731.2	13,578.1	6,617.9	131.6	131.9	82.84	-6,695.6	-655.5	908.1	646.6	261.51	3.473		
13,800.0	6,730.5	13,678.1	6,617.8	133.5	133.8	82.87	-6,795.6	-655.5	908.1	642.8	265.32	3.423		
13,900.0	6,729.9	13,778.1	6,617.7	135.4	135.7	82.90	-6,895.6	-655.5	908.0	638.9	269.12	3.374		
14,000.0	6,729.3	13,878.1	6,617.5	137.3	137.6	82.93	-6,995.6	-655.5	908.0	635.0	272.92	3.327		
14,100.0	6,728.7	13,978.1	6,617.4	139.2	139.5	82.96	-7,095.6	-655.5	907.9	631.2	276.73	3.281		
14,200.0	6,728.0	14,078.1	6,617.2	141.1	141.4	82.99	-7,195.6	-655.5	907.8	627.3	280.53	3.236		
14,300.0	6,727.4	14,178.0	6,617.1	143.0	143.3	83.02	-7,295.6	-655.5	907.8	623.4	284.34	3.193		
14,363.3	6,727.0	14,241.4	6,617.0	144.2	144.5	83.04	-7,358.9	-655.5	907.7	621.0	286.75	3.166 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-203 - Wellbore #1 - Plan #1 (3-14-16)													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			
(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	-89.31	0.4	-30.1	30.1						
100.0	100.0	100.0	100.0	0.1	0.1	-89.31	0.4	-30.1	30.1	29.9	0.22	133.887			
200.0	200.0	200.0	200.0	0.3	0.3	-89.31	0.4	-30.1	30.1	29.4	0.67	44.629			
300.0	300.0	300.0	300.0	0.6	0.6	-89.31	0.4	-30.1	30.1	29.0	1.12	26.777			
400.0	400.0	400.0	400.0	0.8	0.8	-89.31	0.4	-30.1	30.1	28.5	1.57	19.127			
500.0	500.0	500.0	500.0	1.0	1.0	-89.31	0.4	-30.1	30.1	28.1	2.02	14.876			
600.0	600.0	600.0	600.0	1.2	1.2	-89.31	0.4	-30.1	30.1	27.6	2.47	12.172			
700.0	700.0	700.0	700.0	1.5	1.5	-89.31	0.4	-30.1	30.1	27.2	2.92	10.299			
800.0	800.0	800.0	800.0	1.7	1.7	-89.31	0.4	-30.1	30.1	26.7	3.37	8.926 CC, ES			
900.0	900.0	900.0	900.0	1.9	1.9	-117.27	0.4	-30.1	30.7	26.9	3.82	8.031			
1,000.0	999.9	999.9	999.9	2.1	2.1	-123.38	0.4	-30.1	32.7	28.4	4.27	7.655			
1,100.0	1,099.7	1,099.7	1,099.7	2.4	2.4	-131.89	0.4	-30.1	36.7	32.0	4.72	7.776			
1,200.0	1,199.3	1,199.3	1,199.3	2.6	2.6	-140.86	0.4	-30.1	43.3	38.2	5.17	8.385			
1,300.0	1,298.6	1,298.6	1,298.6	2.8	2.8	-148.82	0.4	-30.1	53.0	47.4	5.62	9.431			
1,400.0	1,397.5	1,397.5	1,397.5	3.1	3.0	-155.22	0.4	-30.1	65.7	59.6	6.06	10.832			
1,500.0	1,496.1	1,496.1	1,496.1	3.4	3.3	-160.13	0.4	-30.1	81.4	74.9	6.51	12.507			
1,600.0	1,594.2	1,594.2	1,594.2	3.8	3.5	-163.84	0.4	-30.1	99.7	92.7	6.96	14.332			
1,700.0	1,692.3	1,692.3	1,692.3	4.1	3.7	-166.46	0.4	-30.1	118.6	111.2	7.41	15.999			
1,800.0	1,790.4	1,790.4	1,790.4	4.5	3.9	-168.36	0.4	-30.1	137.6	129.8	7.87	17.489			
1,900.0	1,888.5	1,888.5	1,888.5	4.9	4.1	-169.80	0.4	-30.1	156.8	148.5	8.33	18.823			
2,000.0	1,986.5	1,986.5	1,986.5	5.2	4.4	-170.92	0.4	-30.1	176.0	167.2	8.79	20.021			
2,100.0	2,084.6	2,087.4	2,087.4	5.6	4.6	-171.61	1.3	-30.4	194.7	185.5	9.26	21.023			
2,200.0	2,182.7	2,189.4	2,189.3	6.0	4.8	-171.62	4.8	-31.5	211.8	202.0	9.74	21.750			
2,300.0	2,280.8	2,291.8	2,291.6	6.4	5.0	-171.08	11.0	-33.4	227.2	217.0	10.22	22.230			
2,400.0	2,378.9	2,394.7	2,394.0	6.8	5.3	-170.09	19.8	-36.1	241.0	230.3	10.71	22.493			
2,500.0	2,476.9	2,497.8	2,496.4	7.2	5.5	-168.70	31.3	-39.6	253.3	242.1	11.23	22.564			
2,600.0	2,575.0	2,600.9	2,598.4	7.6	5.8	-166.95	45.4	-43.9	264.2	252.4	11.76	22.468			
2,700.0	2,673.1	2,700.0	2,696.3	8.0	6.0	-165.18	60.3	-48.5	274.5	262.2	12.30	22.319			
2,800.0	2,771.2	2,799.1	2,794.2	8.4	6.3	-163.53	75.1	-53.0	285.2	272.3	12.86	22.172			
2,900.0	2,869.3	2,898.2	2,892.1	8.9	6.6	-162.00	89.9	-57.6	296.0	282.6	13.44	22.029			
3,000.0	2,967.3	2,997.3	2,990.0	9.3	6.9	-160.58	104.7	-62.1	307.0	293.0	14.03	21.891			
3,100.0	3,065.4	3,096.4	3,087.9	9.7	7.2	-159.26	119.5	-66.7	318.3	303.6	14.63	21.757			
3,200.0	3,163.5	3,195.5	3,185.7	10.1	7.5	-158.03	134.3	-71.2	329.6	314.4	15.24	21.627			
3,300.0	3,261.6	3,294.6	3,283.6	10.5	7.8	-156.88	149.1	-75.8	341.1	325.3	15.87	21.502			
3,400.0	3,359.7	3,393.8	3,381.5	10.9	8.1	-155.81	163.9	-80.3	352.8	336.3	16.50	21.382			
3,500.0	3,457.7	3,492.9	3,479.4	11.3	8.4	-154.80	178.7	-84.9	364.5	347.4	17.14	21.268			
3,600.0	3,555.8	3,592.0	3,577.3	11.8	8.7	-153.86	193.5	-89.4	376.4	358.6	17.79	21.158			
3,700.0	3,653.9	3,691.1	3,675.2	12.2	9.0	-152.97	208.4	-94.0	388.3	369.9	18.45	21.053			
3,800.0	3,752.0	3,790.2	3,773.1	12.6	9.3	-152.15	223.2	-98.5	400.3	381.2	19.11	20.950			
3,900.0	3,850.4	3,889.4	3,871.1	12.9	9.7	-151.33	238.0	-103.1	410.6	390.8	19.76	20.782			
4,000.0	3,949.5	3,988.8	3,969.3	13.2	10.0	-150.28	252.9	-107.7	417.9	397.5	20.40	20.491			
4,100.0	4,048.9	4,088.3	4,067.5	13.4	10.3	-149.01	267.7	-112.2	422.4	401.4	21.02	20.093			
4,200.0	4,148.7	4,187.6	4,165.6	13.6	10.7	-147.50	282.6	-116.8	424.2	402.6	21.64	19.601			
4,300.0	4,248.6	4,286.7	4,263.5	13.8	11.0	-145.71	297.4	-121.3	423.4	401.2	22.25	19.028			
4,400.0	4,348.6	4,385.5	4,361.1	13.9	11.3	-117.93	312.1	-125.9	420.5	397.7	22.87	18.385			
4,500.0	4,448.6	4,484.3	4,458.7	14.1	11.7	-115.85	326.9	-130.4	417.8	394.3	23.53	17.756			
4,600.0	4,548.6	4,583.1	4,556.2	14.2	12.0	-113.74	341.7	-134.9	415.7	391.5	24.19	17.185			
4,700.0	4,648.6	4,681.8	4,653.8	14.4	12.4	-111.62	356.4	-139.5	414.2	389.3	24.85	16.670			
4,800.0	4,748.6	4,780.6	4,751.3	14.5	12.7	-109.49	371.2	-144.0	413.2	387.7	25.50	16.206			
4,900.0	4,848.6	4,879.4	4,848.9	14.7	13.0	-107.34	385.9	-148.5	412.8	386.7	26.14	15.792			
4,912.5	4,861.1	4,891.7	4,861.1	14.7	13.1	-107.08	387.8	-149.1	412.8	386.6	26.22	15.744			

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-203 - Wellbore #1 - Plan #1 (3-14-16)													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			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,000.0	4,948.6	4,978.1	4,946.4	14.8	13.4	-105.20	400.7	-153.1	413.1	386.3	26.78	15.425			
5,100.0	5,048.6	5,076.9	5,044.0	15.0	13.7	-103.06	415.5	-157.6	413.9	386.5	27.41	15.101			
5,200.0	5,148.6	5,175.7	5,141.6	15.1	14.1	-100.94	430.2	-162.1	415.3	387.2	28.02	14.819			
5,300.0	5,248.6	5,274.5	5,239.1	15.3	14.4	-98.83	445.0	-166.7	417.3	388.6	28.63	14.574			
5,400.0	5,348.6	5,373.2	5,336.7	15.5	14.8	-96.74	459.7	-171.2	419.8	390.6	29.22	14.366			
5,500.0	5,448.6	5,472.0	5,434.2	15.6	15.1	-94.68	474.5	-175.7	422.9	393.1	29.80	14.192			
5,600.0	5,548.6	5,574.3	5,535.5	15.8	15.4	-92.78	488.3	-180.0	426.2	395.9	30.30	14.066			
5,700.0	5,648.6	5,677.7	5,638.3	16.0	15.6	-91.37	498.8	-183.2	429.0	398.2	30.75	13.951			
5,800.0	5,748.6	5,781.9	5,742.2	16.1	15.9	-90.44	505.7	-185.3	430.9	399.8	31.15	13.833			
5,900.0	5,848.6	5,886.4	5,846.7	16.3	16.0	-89.99	509.0	-186.3	431.9	400.4	31.51	13.704			
6,000.0	5,948.6	5,988.3	5,948.6	16.5	16.2	-89.96	509.3	-186.4	432.0	400.1	31.85	13.561			
6,009.0	5,957.5	5,997.3	5,957.5	16.5	16.2	90.03	509.2	-186.4	432.0	400.1	31.88	13.550			
6,100.0	6,048.6	6,087.8	6,047.8	16.6	16.3	89.23	502.1	-186.4	432.0	399.9	32.08	13.465			
6,200.0	6,147.8	6,186.2	6,144.0	16.7	16.3	88.12	482.4	-186.4	432.2	400.1	32.08	13.472			
6,300.0	6,244.6	6,283.5	6,236.1	16.6	16.1	87.06	450.8	-186.4	432.6	400.7	31.89	13.565			
6,400.0	6,337.4	6,379.9	6,322.5	16.5	16.0	86.05	408.3	-186.4	433.0	401.5	31.54	13.727			
6,500.0	6,424.5	6,475.5	6,402.2	16.3	15.8	85.11	355.7	-186.4	433.6	402.4	31.12	13.932			
6,600.0	6,504.5	6,570.3	6,474.2	16.0	15.6	84.26	294.1	-186.4	434.2	403.5	30.69	14.146			
6,700.0	6,576.0	6,664.4	6,537.6	15.8	15.4	83.50	224.7	-186.4	434.8	404.4	30.35	14.326			
6,800.0	6,637.8	6,757.9	6,591.7	15.6	15.3	82.85	148.4	-186.4	435.4	405.2	30.18	14.426			
6,900.0	6,688.8	6,850.0	6,635.5	15.5	15.4	82.32	67.4	-186.4	435.9	405.6	30.27	14.400			
7,000.0	6,728.1	6,943.6	6,669.6	15.5	15.6	81.91	-19.7	-186.4	436.3	405.6	30.70	14.214			
7,100.0	6,755.1	7,036.1	6,692.7	15.9	16.0	81.62	-109.1	-186.4	436.6	405.2	31.49	13.867			
7,200.0	6,769.3	7,128.3	6,704.7	16.5	16.6	81.47	-200.5	-186.4	436.8	404.2	32.65	13.381			
7,300.0	6,771.4	7,223.3	6,706.4	17.3	17.3	81.45	-295.4	-186.4	436.8	402.7	34.17	12.783			
7,400.0	6,770.8	7,323.3	6,705.8	18.3	18.3	81.45	-395.4	-186.4	436.8	400.8	36.06	12.113			
7,500.0	6,770.1	7,423.3	6,705.1	19.4	19.4	81.45	-495.4	-186.4	436.8	398.6	38.24	11.424			
7,600.0	6,769.5	7,523.3	6,704.5	20.6	20.7	81.45	-595.4	-186.4	436.8	396.2	40.65	10.746			
7,700.0	6,768.9	7,623.3	6,703.9	22.0	22.0	81.45	-695.4	-186.4	436.8	393.6	43.27	10.096			
7,800.0	6,768.2	7,723.3	6,703.3	23.4	23.4	81.45	-795.4	-186.4	436.8	390.8	46.05	9.486			
7,900.0	6,767.6	7,823.3	6,702.6	24.8	24.9	81.45	-895.4	-186.4	436.8	387.9	48.97	8.921			
8,000.0	6,767.0	7,923.3	6,702.0	26.4	26.4	81.45	-995.4	-186.4	436.8	384.8	52.00	8.401			
8,100.0	6,766.4	8,023.3	6,701.4	27.9	28.0	81.45	-1,095.4	-186.4	436.8	381.7	55.13	7.924			
8,200.0	6,765.7	8,123.3	6,700.8	29.6	29.6	81.45	-1,195.4	-186.4	436.8	378.5	58.34	7.488			
8,300.0	6,765.1	8,223.3	6,700.1	31.2	31.3	81.45	-1,295.4	-186.4	436.8	375.2	61.62	7.090			
8,400.0	6,764.5	8,323.3	6,699.5	32.9	32.9	81.45	-1,395.4	-186.4	436.8	371.9	64.95	6.726			
8,500.0	6,763.8	8,423.3	6,698.9	34.6	34.6	81.45	-1,495.4	-186.4	436.8	368.5	68.33	6.393			
8,600.0	6,763.2	8,523.3	6,698.2	36.3	36.4	81.45	-1,595.4	-186.4	436.8	365.1	71.76	6.088			
8,700.0	6,762.6	8,623.3	6,697.6	38.0	38.1	81.45	-1,695.4	-186.4	436.8	361.6	75.22	5.808			
8,800.0	6,762.0	8,723.3	6,697.0	39.8	39.9	81.45	-1,795.4	-186.4	436.8	358.1	78.71	5.550			
8,900.0	6,761.3	8,823.3	6,696.4	41.6	41.7	81.45	-1,895.4	-186.4	436.8	354.6	82.23	5.312			
9,000.0	6,760.7	8,923.3	6,695.7	43.4	43.4	81.45	-1,995.4	-186.4	436.8	351.1	85.78	5.093			
9,100.0	6,760.1	9,023.3	6,695.1	45.2	45.2	81.45	-2,095.4	-186.4	436.8	347.5	89.34	4.889			
9,200.0	6,759.4	9,123.3	6,694.5	47.0	47.1	81.45	-2,195.4	-186.4	436.8	343.9	92.93	4.701			
9,300.0	6,758.8	9,223.3	6,693.8	48.8	48.9	81.45	-2,295.4	-186.4	436.8	340.3	96.53	4.525			
9,400.0	6,758.2	9,323.3	6,693.2	50.6	50.7	81.45	-2,395.4	-186.4	436.8	336.7	100.15	4.362			
9,500.0	6,757.6	9,423.3	6,692.6	52.4	52.5	81.45	-2,495.4	-186.4	436.8	333.1	103.78	4.209			
9,600.0	6,756.9	9,523.3	6,692.0	54.3	54.4	81.45	-2,595.4	-186.4	436.8	329.4	107.42	4.067			
9,700.0	6,756.3	9,623.3	6,691.3	56.1	56.2	81.45	-2,695.4	-186.4	436.8	325.8	111.07	3.933			
9,800.0	6,755.7	9,723.3	6,690.7	57.9	58.1	81.45	-2,795.4	-186.4	436.8	322.1	114.73	3.808			

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-203 - Wellbore #1 - Plan #1 (3-14-16)											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 Depth (ft)	Vertical Depth Depth (ft)	Measured Depth Depth (ft)	Vertical Depth 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			
9,900.0	6,755.0	9,823.3	6,690.1	59.8	59.9	81.45	-2,895.4	-186.4	436.8	318.4	118.40	3.689			
10,000.0	6,754.4	9,923.3	6,689.4	61.6	61.8	81.45	-2,995.4	-186.4	436.8	314.8	122.08	3.578			
10,100.0	6,753.8	10,023.3	6,688.8	63.5	63.6	81.45	-3,095.4	-186.4	436.8	311.1	125.77	3.473			
10,200.0	6,753.2	10,123.3	6,688.2	65.4	65.5	81.45	-3,195.4	-186.4	436.8	307.4	129.46	3.374			
10,300.0	6,752.5	10,223.3	6,687.6	67.2	67.4	81.45	-3,295.4	-186.4	436.8	303.7	133.16	3.281			
10,400.0	6,751.9	10,323.3	6,686.9	69.1	69.2	81.45	-3,395.4	-186.4	436.8	300.0	136.87	3.192			
10,500.0	6,751.3	10,423.3	6,686.3	71.0	71.1	81.45	-3,495.4	-186.4	436.8	296.3	140.58	3.108			
10,600.0	6,750.6	10,523.3	6,685.7	72.8	73.0	81.45	-3,595.4	-186.4	436.8	292.6	144.29	3.028			
10,700.0	6,750.0	10,623.3	6,685.0	74.7	74.8	81.45	-3,695.4	-186.4	436.8	288.8	148.01	2.951			
10,800.0	6,749.4	10,723.3	6,684.4	76.6	76.7	81.45	-3,795.4	-186.4	436.8	285.1	151.74	2.879			
10,900.0	6,748.8	10,823.3	6,683.8	78.5	78.6	81.45	-3,895.4	-186.4	436.8	281.4	155.46	2.810			
11,000.0	6,748.1	10,923.3	6,683.2	80.4	80.5	81.45	-3,995.4	-186.4	436.8	277.7	159.19	2.744			
11,100.0	6,747.5	11,023.3	6,682.5	82.2	82.4	81.45	-4,095.4	-186.4	436.8	273.9	162.93	2.681			
11,200.0	6,746.9	11,123.3	6,681.9	84.1	84.3	81.45	-4,195.4	-186.4	436.8	270.2	166.67	2.621			
11,300.0	6,746.2	11,223.3	6,681.3	86.0	86.1	81.45	-4,295.4	-186.4	436.8	266.4	170.41	2.564			
11,400.0	6,745.6	11,323.3	6,680.6	87.9	88.0	81.45	-4,395.4	-186.4	436.8	262.7	174.15	2.508			
11,500.0	6,745.0	11,423.3	6,680.0	89.8	89.9	81.45	-4,495.4	-186.4	436.8	259.0	177.90	2.456			
11,600.0	6,744.4	11,523.3	6,679.4	91.7	91.8	81.45	-4,595.4	-186.4	436.8	255.2	181.64	2.405			
11,700.0	6,743.7	11,623.3	6,678.8	93.6	93.7	81.45	-4,695.4	-186.4	436.8	251.5	185.39	2.356			
11,800.0	6,743.1	11,723.3	6,678.1	95.5	95.6	81.45	-4,795.4	-186.4	436.8	247.7	189.15	2.310			
11,900.0	6,742.5	11,823.3	6,677.5	97.4	97.5	81.45	-4,895.3	-186.5	436.8	243.9	192.90	2.265			
12,000.0	6,741.8	11,923.3	6,676.9	99.3	99.4	81.45	-4,995.3	-186.5	436.8	240.2	196.66	2.221			
12,100.0	6,741.2	12,023.3	6,676.2	101.2	101.3	81.45	-5,095.3	-186.5	436.8	236.4	200.41	2.180			
12,200.0	6,740.6	12,123.3	6,675.6	103.1	103.2	81.45	-5,195.3	-186.5	436.8	232.7	204.17	2.140			
12,300.0	6,740.0	12,223.3	6,675.0	104.9	105.1	81.45	-5,295.3	-186.5	436.8	228.9	207.94	2.101			
12,400.0	6,739.3	12,323.3	6,674.4	106.8	107.0	81.45	-5,395.3	-186.5	436.8	225.2	211.70	2.064			
12,500.0	6,738.7	12,423.3	6,673.7	108.7	108.9	81.45	-5,495.3	-186.5	436.8	221.4	215.46	2.027			
12,600.0	6,738.1	12,523.3	6,673.1	110.6	110.8	81.45	-5,595.3	-186.5	436.8	217.6	219.23	1.993			
12,700.0	6,737.5	12,623.3	6,672.5	112.5	112.7	81.45	-5,695.3	-186.5	436.8	213.9	222.99	1.959			
12,800.0	6,736.8	12,723.3	6,671.8	114.4	114.6	81.45	-5,795.3	-186.5	436.8	210.1	226.76	1.926			
12,900.0	6,736.2	12,823.3	6,671.2	116.4	116.5	81.45	-5,895.3	-186.5	436.8	206.3	230.53	1.895			
13,000.0	6,735.6	12,923.3	6,670.6	118.3	118.4	81.45	-5,995.3	-186.5	436.8	202.5	234.30	1.864			
13,100.0	6,734.9	13,023.3	6,670.0	120.2	120.3	81.45	-6,095.3	-186.5	436.8	198.8	238.07	1.835			
13,200.0	6,734.3	13,123.3	6,669.3	122.1	122.2	81.45	-6,195.3	-186.5	436.8	195.0	241.84	1.806			
13,300.0	6,733.7	13,223.3	6,668.7	124.0	124.1	81.45	-6,295.3	-186.5	436.8	191.2	245.62	1.779			
13,400.0	6,733.1	13,323.3	6,668.1	125.9	126.0	81.45	-6,395.3	-186.5	436.8	187.5	249.39	1.752			
13,500.0	6,732.4	13,423.3	6,667.4	127.8	127.9	81.45	-6,495.3	-186.5	436.8	183.7	253.17	1.726			
13,600.0	6,731.8	13,523.3	6,666.8	129.7	129.8	81.45	-6,595.3	-186.5	436.8	179.9	256.94	1.700			
13,700.0	6,731.2	13,623.3	6,666.2	131.6	131.7	81.45	-6,695.3	-186.5	436.8	176.1	260.72	1.676			
13,800.0	6,730.5	13,723.3	6,665.6	133.5	133.6	81.45	-6,795.3	-186.5	436.8	172.4	264.50	1.652			
13,900.0	6,729.9	13,823.3	6,664.9	135.4	135.5	81.45	-6,895.3	-186.5	436.8	168.6	268.27	1.628			
14,000.0	6,729.3	13,923.3	6,664.3	137.3	137.5	81.45	-6,995.3	-186.5	436.9	164.8	272.05	1.606			
14,100.0	6,728.7	14,023.3	6,663.7	139.2	139.4	81.45	-7,095.3	-186.5	436.9	161.0	275.83	1.584			
14,200.0	6,728.0	14,123.3	6,663.1	141.1	141.3	81.45	-7,195.3	-186.5	436.9	157.2	279.61	1.562			
14,300.0	6,727.4	14,223.3	6,662.4	143.0	143.2	81.45	-7,295.3	-186.5	436.9	153.5	283.39	1.542			
14,363.3	6,727.0	14,286.6	6,662.0	144.2	144.4	81.45	-7,358.6	-186.5	436.9	151.1	285.79	1.529 SF			



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-243 - Wellbore #1 - Plan #1 (3-14-16)													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 (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	-89.45	0.7	-74.9	75.0					
100.0	100.0	100.0	100.0	0.1	0.1	-89.45	0.7	-74.9	75.0	74.7	0.22	333.469		
200.0	200.0	200.0	200.0	0.3	0.3	-89.45	0.7	-74.9	75.0	74.3	0.67	111.156		
300.0	300.0	300.0	300.0	0.6	0.6	-89.45	0.7	-74.9	75.0	73.8	1.12	66.694		
400.0	400.0	400.0	400.0	0.8	0.8	-89.45	0.7	-74.9	75.0	73.4	1.57	47.638		
500.0	500.0	500.0	500.0	1.0	1.0	-89.45	0.7	-74.9	75.0	72.9	2.02	37.052		
600.0	600.0	600.0	600.0	1.2	1.2	-89.45	0.7	-74.9	75.0	72.5	2.47	30.315		
700.0	700.0	700.0	700.0	1.5	1.5	-89.45	0.7	-74.9	75.0	72.0	2.92	25.651		
800.0	800.0	800.0	800.0	1.7	1.7	-89.45	0.7	-74.9	75.0	71.6	3.37	22.231	CC, ES	
900.0	900.0	900.0	900.0	1.9	1.9	-116.09	0.7	-74.9	75.5	71.7	3.82	19.774		
1,000.0	999.9	999.9	999.9	2.1	2.1	-118.68	0.7	-74.9	77.3	73.1	4.27	18.126		
1,100.0	1,099.7	1,098.1	1,098.0	2.4	2.3	-122.08	1.4	-76.0	81.7	77.0	4.71	17.354	SF	
1,200.0	1,199.3	1,195.9	1,195.8	2.6	2.6	-125.36	3.4	-79.2	89.7	84.6	5.15	17.425		
1,300.0	1,298.6	1,293.3	1,293.0	2.8	2.8	-128.19	6.6	-84.5	101.5	95.9	5.60	18.109		
1,400.0	1,397.5	1,390.1	1,389.4	3.1	3.0	-130.43	11.2	-91.9	116.8	110.8	6.07	19.242		
1,500.0	1,496.1	1,486.1	1,484.8	3.4	3.2	-132.10	17.0	-101.2	135.7	129.2	6.56	20.692		
1,600.0	1,594.2	1,581.2	1,579.0	3.8	3.5	-133.32	24.0	-112.5	157.8	150.7	7.07	22.315		
1,700.0	1,692.3	1,675.6	1,672.1	4.1	3.8	-133.81	32.1	-125.6	181.7	174.1	7.61	23.870		
1,800.0	1,790.4	1,769.3	1,764.2	4.5	4.1	-133.67	41.4	-140.6	207.1	199.0	8.18	25.321		
1,900.0	1,888.5	1,862.2	1,854.9	4.9	4.4	-133.12	51.7	-157.3	234.1	225.3	8.77	26.675		
2,000.0	1,986.5	1,956.6	1,946.7	5.2	4.8	-132.34	63.2	-175.9	262.3	252.9	9.40	27.902		
2,100.0	2,084.6	2,052.4	2,039.9	5.6	5.2	-131.67	75.0	-194.9	290.6	280.6	10.04	28.939		
2,200.0	2,182.7	2,148.2	2,133.1	6.0	5.6	-131.11	86.8	-214.0	319.0	308.3	10.70	29.820		
2,300.0	2,280.8	2,244.1	2,226.3	6.4	6.0	-130.65	98.6	-233.0	347.4	336.0	11.36	30.573		
2,400.0	2,378.9	2,339.9	2,319.5	6.8	6.5	-130.26	110.4	-252.0	375.8	363.8	12.04	31.220		
2,500.0	2,476.9	2,435.8	2,412.7	7.2	6.9	-129.93	122.2	-271.1	404.3	391.6	12.72	31.781		
2,600.0	2,575.0	2,531.6	2,505.9	7.6	7.3	-129.63	134.0	-290.1	432.7	419.3	13.41	32.271		
2,700.0	2,673.1	2,627.5	2,599.0	8.0	7.8	-129.38	145.8	-309.1	461.2	447.1	14.10	32.701		
2,800.0	2,771.2	2,723.3	2,692.2	8.4	8.2	-129.15	157.5	-328.1	489.7	474.9	14.80	33.081		
2,900.0	2,869.3	2,819.2	2,785.4	8.9	8.7	-128.95	169.3	-347.2	518.1	502.6	15.50	33.419		
3,000.0	2,967.3	2,915.0	2,878.6	9.3	9.1	-128.77	181.1	-366.2	546.6	530.4	16.21	33.721		
3,100.0	3,065.4	3,010.8	2,971.8	9.7	9.6	-128.61	192.9	-385.2	575.1	558.2	16.92	33.991		
3,200.0	3,163.5	3,106.7	3,065.0	10.1	10.1	-128.46	204.7	-404.3	603.6	586.0	17.63	34.236		
3,300.0	3,261.6	3,202.5	3,158.2	10.5	10.5	-128.33	216.5	-423.3	632.1	613.8	18.34	34.457		
3,400.0	3,359.7	3,298.4	3,251.4	10.9	11.0	-128.20	228.3	-442.3	660.6	641.5	19.06	34.658		
3,500.0	3,457.7	3,394.2	3,344.6	11.3	11.5	-128.09	240.1	-461.4	689.1	669.3	19.78	34.841		
3,600.0	3,555.8	3,490.1	3,437.8	11.8	11.9	-127.99	251.8	-480.4	717.6	697.1	20.50	35.009		
3,700.0	3,653.9	3,585.9	3,531.0	12.2	12.4	-127.89	263.6	-499.4	746.1	724.9	21.22	35.163		
3,800.0	3,752.0	3,681.8	3,624.2	12.6	12.9	-127.85	275.4	-518.5	774.6	752.7	21.94	35.299		
3,900.0	3,850.4	3,777.9	3,717.7	12.9	13.4	-128.09	287.3	-537.6	801.8	779.2	22.64	35.415		
4,000.0	3,949.5	3,874.6	3,811.6	13.2	13.8	-128.11	299.1	-556.7	827.0	803.7	23.31	35.485		
4,100.0	4,048.9	3,971.5	3,905.9	13.4	14.3	-127.93	311.1	-576.0	850.2	826.3	23.93	35.524		
4,200.0	4,148.7	4,068.7	4,000.4	13.6	14.8	-127.56	323.0	-595.3	871.4	846.9	24.52	35.541		
4,300.0	4,248.6	4,165.9	4,094.9	13.8	15.3	-127.02	335.0	-614.6	890.6	865.6	25.06	35.545		
4,400.0	4,348.6	4,263.2	4,189.5	13.9	15.8	-100.44	346.9	-633.9	908.3	882.7	25.55	35.550		
4,500.0	4,448.6	4,360.4	4,284.0	14.1	16.2	-99.48	358.9	-653.2	925.9	899.9	26.04	35.557		
4,600.0	4,548.6	4,457.6	4,378.6	14.2	16.7	-98.56	370.8	-672.5	943.8	917.3	26.53	35.582		
4,700.0	4,648.6	4,554.9	4,473.1	14.4	17.2	-97.67	382.8	-691.8	962.0	934.9	27.01	35.621		
4,800.0	4,748.6	4,652.1	4,567.7	14.5	17.7	-96.81	394.8	-711.1	980.3	952.8	27.48	35.673		
4,900.0	4,848.6	4,749.3	4,662.2	14.7	18.2	-95.98	406.7	-730.4	998.9	970.9	27.95	35.737		

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

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #1 (3-15-16)													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			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,100.0	5,048.6	5,040.8	4,998.0	15.0	15.0	-96.98	433.9	-368.5	620.7	592.5	28.19	22.017			
5,200.0	5,148.6	5,139.5	5,095.4	15.1	15.4	-95.71	446.7	-378.1	629.0	600.3	28.70	21.919			
5,300.0	5,248.6	5,238.2	5,192.7	15.3	15.8	-94.47	459.5	-387.7	637.6	608.4	29.19	21.841			
5,400.0	5,348.6	5,336.8	5,290.1	15.5	16.1	-93.26	472.4	-397.3	646.5	616.8	29.68	21.780			
5,500.0	5,448.6	5,443.6	5,395.5	15.6	16.5	-92.04	485.7	-407.3	655.4	625.2	30.15	21.736			
5,600.0	5,548.6	5,558.1	5,509.2	15.8	16.8	-91.05	496.9	-415.6	662.4	631.8	30.58	21.663			
5,700.0	5,648.6	5,673.6	5,624.3	16.0	17.0	-90.40	504.4	-421.2	667.2	636.2	30.98	21.540			
5,800.0	5,748.6	5,789.6	5,740.2	16.1	17.2	-90.07	508.2	-424.1	669.7	638.3	31.35	21.364			
5,900.0	5,848.6	5,898.0	5,848.6	16.3	17.4	-90.02	508.7	-424.5	670.0	638.3	31.69	21.142			
6,000.0	5,948.6	5,998.0	5,948.6	16.5	17.5	-90.02	508.7	-424.5	670.0	638.0	32.04	20.911			
6,063.6	6,012.1	6,061.6	6,012.1	16.6	17.6	90.07	508.7	-424.5	670.0	637.7	32.25	20.774			
6,100.0	6,048.6	6,098.0	6,048.6	16.6	17.7	90.03	508.3	-424.5	670.0	637.6	32.37	20.699			
6,200.0	6,147.8	6,198.1	6,148.2	16.7	17.7	90.20	498.4	-424.5	670.0	637.5	32.47	20.637			
6,300.0	6,244.6	6,298.6	6,245.9	16.6	17.7	90.37	475.4	-424.5	670.0	637.7	32.35	20.709			
6,400.0	6,337.4	6,399.2	6,339.9	16.5	17.6	90.53	439.8	-424.5	670.0	637.9	32.07	20.892			
6,500.0	6,424.5	6,500.2	6,428.7	16.3	17.4	90.68	392.0	-424.5	670.0	638.4	31.68	21.151			
6,600.0	6,504.5	6,601.3	6,510.6	16.0	17.2	90.82	332.7	-424.5	670.1	638.8	31.26	21.437			
6,700.0	6,576.0	6,702.7	6,584.1	15.8	16.9	90.94	263.0	-424.5	670.1	639.2	30.90	21.684			
6,800.0	6,637.8	6,804.2	6,647.8	15.6	16.7	91.05	184.1	-424.5	670.1	639.4	30.71	21.817			
6,900.0	6,688.8	6,905.9	6,700.6	15.5	16.5	91.14	97.2	-424.5	670.1	639.3	30.79	21.762			
7,000.0	6,728.1	7,007.7	6,741.4	15.5	16.3	91.21	4.0	-424.5	670.1	638.9	31.22	21.468			
7,100.0	6,755.1	7,109.7	6,769.5	15.9	16.2	91.26	-93.9	-424.5	670.2	638.1	32.03	20.923			
7,200.0	6,769.3	7,211.7	6,784.4	16.5	16.9	91.29	-194.7	-424.5	670.2	636.9	33.23	20.165			
7,300.0	6,771.4	7,312.9	6,786.6	17.3	17.7	91.30	-295.9	-424.5	670.2	635.4	34.80	19.258			
7,400.0	6,770.8	7,412.9	6,786.2	18.3	18.8	91.32	-395.9	-424.5	670.2	633.5	36.68	18.271			
7,500.0	6,770.1	7,512.9	6,785.8	19.4	19.9	91.34	-495.9	-424.5	670.2	631.3	38.85	17.250			
7,600.0	6,769.5	7,612.9	6,785.4	20.6	21.1	91.36	-595.9	-424.5	670.2	628.9	41.26	16.241			
7,700.0	6,768.9	7,712.9	6,784.9	22.0	22.4	91.37	-695.9	-424.5	670.2	626.3	43.88	15.273			
7,800.0	6,768.2	7,812.9	6,784.5	23.4	23.8	91.39	-795.9	-424.5	670.2	623.5	46.67	14.361			
7,900.0	6,767.6	7,912.9	6,784.1	24.8	25.3	91.41	-895.9	-424.5	670.2	620.6	49.60	13.513			
8,000.0	6,767.0	8,012.9	6,783.7	26.4	26.8	91.43	-995.9	-424.5	670.2	617.6	52.64	12.732			
8,100.0	6,766.4	8,112.9	6,783.3	27.9	28.4	91.45	-1,095.9	-424.5	670.2	614.4	55.78	12.015			
8,200.0	6,765.7	8,212.9	6,782.8	29.6	30.0	91.46	-1,195.9	-424.5	670.2	611.2	59.01	11.358			
8,300.0	6,765.1	8,312.9	6,782.4	31.2	31.6	91.48	-1,295.9	-424.5	670.2	607.9	62.30	10.757			
8,400.0	6,764.5	8,412.9	6,782.0	32.9	33.3	91.50	-1,395.9	-424.5	670.2	604.6	65.66	10.208			
8,500.0	6,763.8	8,512.9	6,781.6	34.6	35.0	91.52	-1,495.9	-424.5	670.2	601.2	69.06	9.705			
8,600.0	6,763.2	8,612.9	6,781.2	36.3	36.7	91.53	-1,595.9	-424.5	670.2	597.7	72.51	9.244			
8,700.0	6,762.6	8,712.9	6,780.7	38.0	38.4	91.55	-1,695.9	-424.5	670.2	594.2	75.99	8.820			
8,800.0	6,762.0	8,812.9	6,780.3	39.8	40.2	91.57	-1,795.9	-424.5	670.2	590.7	79.51	8.430			
8,900.0	6,761.3	8,912.9	6,779.9	41.6	41.9	91.59	-1,895.9	-424.5	670.3	587.2	83.06	8.070			
9,000.0	6,760.7	9,012.9	6,779.5	43.4	43.7	91.61	-1,995.9	-424.5	670.3	583.6	86.63	7.737			
9,100.0	6,760.1	9,112.9	6,779.1	45.2	45.5	91.62	-2,095.9	-424.5	670.3	580.0	90.22	7.429			
9,200.0	6,759.4	9,212.9	6,778.7	47.0	47.3	91.64	-2,195.9	-424.5	670.3	576.4	93.83	7.143			
9,300.0	6,758.8	9,312.9	6,778.2	48.8	49.1	91.66	-2,295.9	-424.5	670.3	572.8	97.46	6.878			
9,400.0	6,758.2	9,412.9	6,777.8	50.6	50.9	91.68	-2,395.9	-424.5	670.3	569.2	101.10	6.630			
9,500.0	6,757.6	9,512.9	6,777.4	52.4	52.7	91.70	-2,495.9	-424.5	670.3	565.5	104.76	6.398			
9,600.0	6,756.9	9,612.9	6,777.0	54.3	54.6	91.71	-2,595.9	-424.5	670.3	561.9	108.43	6.182			
9,700.0	6,756.3	9,712.9	6,776.6	56.1	56.4	91.73	-2,695.9	-424.5	670.3	558.2	112.11	5.979			
9,800.0	6,755.7	9,812.9	6,776.1	57.9	58.2	91.75	-2,795.9	-424.5	670.3	554.5	115.80	5.788			
9,900.0	6,755.0	9,912.9	6,775.7	59.8	60.1	91.77	-2,895.9	-424.5	670.3	550.8	119.51	5.609			

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #1 (3-15-16)													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)			
10,000.0	6,754.4	10,012.9	6,775.3	61.6	61.9	91.79	-2,995.9	-424.5	670.3	547.1	123.21	5.440		
10,100.0	6,753.8	10,112.9	6,774.9	63.5	63.8	91.80	-3,095.9	-424.5	670.3	543.4	126.93	5.281		
10,200.0	6,753.2	10,212.9	6,774.5	65.4	65.6	91.82	-3,195.9	-424.5	670.3	539.7	130.65	5.131		
10,300.0	6,752.5	10,312.9	6,774.0	67.2	67.5	91.84	-3,295.9	-424.5	670.3	536.0	134.38	4.988		
10,400.0	6,751.9	10,412.9	6,773.6	69.1	69.4	91.86	-3,395.9	-424.5	670.3	532.2	138.12	4.853		
10,500.0	6,751.3	10,512.9	6,773.2	71.0	71.2	91.87	-3,495.9	-424.5	670.4	528.5	141.86	4.725		
10,600.0	6,750.6	10,612.9	6,772.8	72.8	73.1	91.89	-3,595.9	-424.5	670.4	524.8	145.61	4.604		
10,700.0	6,750.0	10,712.9	6,772.4	74.7	75.0	91.91	-3,695.9	-424.5	670.4	521.0	149.36	4.488		
10,800.0	6,749.4	10,812.9	6,771.9	76.6	76.8	91.93	-3,795.9	-424.5	670.4	517.3	153.11	4.378		
10,900.0	6,748.8	10,912.9	6,771.5	78.5	78.7	91.95	-3,895.9	-424.5	670.4	513.5	156.87	4.274		
11,000.0	6,748.1	11,012.9	6,771.1	80.4	80.6	91.96	-3,995.9	-424.5	670.4	509.8	160.63	4.173		
11,100.0	6,747.5	11,112.9	6,770.7	82.2	82.5	91.98	-4,095.9	-424.5	670.4	506.0	164.40	4.078		
11,200.0	6,746.9	11,212.9	6,770.3	84.1	84.4	92.00	-4,195.9	-424.5	670.4	502.2	168.17	3.987		
11,300.0	6,746.2	11,312.9	6,769.9	86.0	86.3	92.02	-4,295.9	-424.5	670.4	498.5	171.94	3.899		
11,400.0	6,745.6	11,412.9	6,769.4	87.9	88.1	92.04	-4,395.9	-424.5	670.4	494.7	175.71	3.815		
11,500.0	6,745.0	11,512.9	6,769.0	89.8	90.0	92.05	-4,495.9	-424.5	670.4	490.9	179.49	3.735		
11,600.0	6,744.4	11,612.9	6,768.6	91.7	91.9	92.07	-4,595.9	-424.5	670.4	487.2	183.27	3.658		
11,700.0	6,743.7	11,712.9	6,768.2	93.6	93.8	92.09	-4,695.9	-424.5	670.4	483.4	187.05	3.584		
11,800.0	6,743.1	11,812.9	6,767.8	95.5	95.7	92.11	-4,795.9	-424.5	670.5	479.6	190.83	3.513		
11,900.0	6,742.5	11,912.9	6,767.3	97.4	97.6	92.13	-4,895.9	-424.5	670.5	475.8	194.62	3.445		
12,000.0	6,741.8	12,012.9	6,766.9	99.3	99.5	92.14	-4,995.9	-424.5	670.5	472.1	198.40	3.379		
12,100.0	6,741.2	12,112.9	6,766.5	101.2	101.4	92.16	-5,095.9	-424.5	670.5	468.3	202.19	3.316		
12,200.0	6,740.6	12,212.9	6,766.1	103.1	103.3	92.18	-5,195.9	-424.5	670.5	464.5	205.98	3.255		
12,300.0	6,740.0	12,312.9	6,765.7	104.9	105.2	92.20	-5,295.9	-424.5	670.5	460.7	209.78	3.196		
12,400.0	6,739.3	12,412.9	6,765.2	106.8	107.1	92.21	-5,395.9	-424.5	670.5	456.9	213.57	3.140		
12,500.0	6,738.7	12,512.9	6,764.8	108.7	109.0	92.23	-5,495.9	-424.5	670.5	453.1	217.36	3.085		
12,600.0	6,738.1	12,612.9	6,764.4	110.6	110.9	92.25	-5,595.9	-424.5	670.5	449.4	221.16	3.032		
12,700.0	6,737.5	12,712.9	6,764.0	112.5	112.7	92.27	-5,695.9	-424.5	670.5	445.6	224.96	2.981		
12,800.0	6,736.8	12,812.9	6,763.6	114.4	114.6	92.29	-5,795.9	-424.5	670.5	441.8	228.76	2.931		
12,900.0	6,736.2	12,912.9	6,763.2	116.4	116.5	92.30	-5,895.8	-424.5	670.5	438.0	232.56	2.883		
13,000.0	6,735.6	13,012.9	6,762.7	118.3	118.5	92.32	-5,995.8	-424.5	670.6	434.2	236.36	2.837		
13,100.0	6,734.9	13,112.9	6,762.3	120.2	120.4	92.34	-6,095.8	-424.5	670.6	430.4	240.16	2.792		
13,200.0	6,734.3	13,212.9	6,761.9	122.1	122.3	92.36	-6,195.8	-424.5	670.6	426.6	243.96	2.749		
13,300.0	6,733.7	13,312.9	6,761.5	124.0	124.2	92.38	-6,295.8	-424.5	670.6	422.8	247.76	2.707		
13,400.0	6,733.1	13,412.9	6,761.1	125.9	126.1	92.39	-6,395.8	-424.5	670.6	419.0	251.57	2.666		
13,500.0	6,732.4	13,512.9	6,760.6	127.8	128.0	92.41	-6,495.8	-424.5	670.6	415.2	255.37	2.626		
13,600.0	6,731.8	13,612.9	6,760.2	129.7	129.9	92.43	-6,595.8	-424.5	670.6	411.4	259.18	2.587		
13,700.0	6,731.2	13,712.9	6,759.8	131.6	131.8	92.45	-6,695.8	-424.5	670.6	407.6	262.99	2.550		
13,800.0	6,730.5	13,812.9	6,759.4	133.5	133.7	92.47	-6,795.8	-424.5	670.6	403.8	266.79	2.514		
13,900.0	6,729.9	13,912.9	6,759.0	135.4	135.6	92.48	-6,895.8	-424.5	670.6	400.0	270.60	2.478		
14,000.0	6,729.3	14,012.9	6,758.5	137.3	137.5	92.50	-6,995.8	-424.5	670.6	396.2	274.41	2.444		
14,100.0	6,728.7	14,112.9	6,758.1	139.2	139.4	92.52	-7,095.8	-424.5	670.7	392.4	278.22	2.411		
14,200.0	6,728.0	14,212.9	6,757.7	141.1	141.3	92.54	-7,195.8	-424.5	670.7	388.6	282.03	2.378		
14,300.0	6,727.4	14,312.9	6,757.3	143.0	143.2	92.55	-7,295.8	-424.5	670.7	384.8	285.84	2.346		
14,363.3	6,727.0	14,376.2	6,757.0	144.2	144.4	92.57	-7,359.2	-424.5	670.7	382.4	288.25	2.327 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-423 - Wellbore #1 - Plan #1 (3-15-16)													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 (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	-88.66	0.4	-15.0	15.1	15.1	0.00	N/A		
100.0	100.0	99.0	99.0	0.1	0.1	-88.66	0.4	-15.0	15.0	14.8	0.22	67.293		
200.0	200.0	199.0	199.0	0.3	0.3	-88.66	0.4	-15.0	15.0	14.4	0.67	22.394		
300.0	300.0	299.0	299.0	0.6	0.6	-88.66	0.4	-15.0	15.0	13.9	1.12	13.418		
400.0	400.0	399.0	399.0	0.8	0.8	-88.66	0.4	-15.0	15.0	13.5	1.57	9.579		
500.0	500.0	499.0	499.0	1.0	1.0	-88.66	0.4	-15.0	15.0	13.0	2.02	7.448		
600.0	600.0	599.0	599.0	1.2	1.2	-88.66	0.4	-15.0	15.0	12.6	2.47	6.093		
700.0	700.0	699.0	699.0	1.5	1.5	-88.66	0.4	-15.0	15.0	12.1	2.92	5.155		
800.0	800.0	799.0	799.0	1.7	1.7	-88.66	0.4	-15.0	15.0	11.7	3.37	4.467 CC		
900.0	900.0	899.0	899.0	1.9	1.9	-118.78	0.4	-15.0	15.6	11.8	3.82	4.096		
1,000.0	999.9	998.9	998.9	2.1	2.1	-129.85	0.4	-15.0	17.9	13.6	4.26	4.188		
1,100.0	1,099.7	1,098.7	1,098.7	2.4	2.4	-142.62	0.4	-15.0	22.6	17.9	4.71	4.798		
1,200.0	1,199.3	1,198.3	1,198.3	2.6	2.6	-153.09	0.4	-15.0	30.4	25.2	5.16	5.890		
1,300.0	1,298.6	1,297.6	1,297.6	2.8	2.8	-160.44	0.4	-15.0	41.2	35.6	5.61	7.351		
1,400.0	1,397.5	1,396.5	1,396.5	3.1	3.0	-165.39	0.4	-15.0	55.0	48.9	6.05	9.082		
1,500.0	1,496.1	1,495.1	1,495.1	3.4	3.2	-168.77	0.4	-15.0	71.5	65.0	6.50	11.009		
1,600.0	1,594.2	1,593.2	1,593.2	3.8	3.5	-171.11	0.4	-15.0	90.4	83.5	6.94	13.025		
1,700.0	1,692.3	1,691.3	1,691.3	4.1	3.7	-172.69	0.4	-15.0	109.7	102.3	7.40	14.836		
1,800.0	1,790.4	1,789.4	1,789.4	4.5	3.9	-173.79	0.4	-15.0	129.1	121.3	7.85	16.437		
1,900.0	1,888.5	1,887.5	1,887.5	4.9	4.1	-174.60	0.4	-15.0	148.5	140.2	8.32	17.860		
2,000.0	1,986.5	1,985.5	1,985.5	5.2	4.4	-175.23	0.4	-15.0	167.9	159.2	8.78	19.131		
2,100.0	2,084.6	2,083.6	2,083.6	5.6	4.6	-175.72	0.4	-15.0	187.4	178.1	9.24	20.273		
2,200.0	2,182.7	2,181.7	2,181.7	6.0	4.8	-176.13	0.4	-15.0	206.8	197.1	9.71	21.303		
2,300.0	2,280.8	2,279.8	2,279.8	6.4	5.0	-176.46	0.4	-15.0	226.3	216.1	10.18	22.236		
2,400.0	2,378.9	2,377.9	2,377.9	6.8	5.2	-176.74	0.4	-15.0	245.8	235.1	10.65	23.086		
2,500.0	2,476.9	2,475.9	2,475.9	7.2	5.5	-176.98	0.4	-15.0	265.3	254.1	11.12	23.862		
2,600.0	2,575.0	2,574.4	2,574.4	7.6	5.7	-177.13	1.2	-15.0	284.0	272.4	11.60	24.490		
2,700.0	2,673.1	2,685.5	2,685.5	8.0	5.9	-177.04	4.8	-14.7	300.4	288.3	12.09	24.856		
2,800.0	2,771.2	2,792.4	2,792.1	8.4	6.2	-176.75	11.5	-14.1	314.2	301.7	12.58	24.984		
2,900.0	2,869.3	2,900.0	2,899.2	8.9	6.4	-176.25	21.2	-13.3	325.5	312.5	13.07	24.899		
3,000.0	2,967.3	3,008.0	3,006.5	9.3	6.7	-175.58	34.0	-12.2	334.3	320.8	13.58	24.621		
3,100.0	3,065.4	3,116.3	3,113.6	9.7	6.9	-174.71	49.8	-10.8	340.6	326.5	14.09	24.172		
3,200.0	3,163.5	3,219.7	3,215.5	10.1	7.2	-173.73	67.3	-9.3	344.9	330.3	14.60	23.618		
3,300.0	3,261.6	3,319.5	3,313.8	10.5	7.5	-172.79	84.4	-7.9	349.0	333.9	15.11	23.092		
3,400.0	3,359.7	3,419.2	3,412.0	10.9	7.7	-171.87	101.5	-6.4	353.2	337.6	15.63	22.595		
3,500.0	3,457.7	3,519.0	3,510.3	11.3	8.0	-170.98	118.7	-4.9	357.5	341.3	16.16	22.125		
3,600.0	3,555.8	3,618.7	3,608.6	11.8	8.3	-170.10	135.8	-3.5	361.9	345.2	16.69	21.679		
3,700.0	3,653.9	3,718.5	3,706.8	12.2	8.6	-169.25	152.9	-2.0	366.4	349.1	17.24	21.256		
3,800.0	3,752.0	3,818.2	3,805.1	12.6	8.9	-168.42	170.1	-0.5	370.9	353.1	17.79	20.849		
3,900.0	3,850.4	3,918.0	3,903.4	12.9	9.2	-167.55	187.2	0.9	373.4	355.1	18.34	20.363		
4,000.0	3,949.5	4,017.8	4,001.7	13.2	9.6	-166.55	204.3	2.4	372.7	353.8	18.87	19.747		
4,100.0	4,048.9	4,117.4	4,099.8	13.4	9.9	-165.40	221.4	3.8	368.6	349.3	19.39	19.012		
4,200.0	4,148.7	4,216.8	4,197.7	13.6	10.2	-164.06	238.5	5.3	361.4	341.5	19.89	18.166		
4,300.0	4,248.6	4,315.8	4,295.3	13.8	10.5	-162.48	255.5	6.8	351.1	330.7	20.39	17.217		
4,400.0	4,348.6	4,414.4	4,392.4	13.9	10.9	-134.91	272.4	8.2	338.1	317.2	20.92	16.162		
4,500.0	4,448.6	4,512.9	4,489.4	14.1	11.2	-132.96	289.4	9.6	325.0	303.5	21.52	15.105		
4,600.0	4,548.6	4,611.4	4,586.4	14.2	11.6	-130.85	306.3	11.1	312.4	290.2	22.14	14.108		
4,700.0	4,648.6	4,709.9	4,683.4	14.4	11.9	-128.57	323.2	12.5	300.2	277.4	22.79	13.171		
4,800.0	4,748.6	4,808.4	4,780.5	14.5	12.2	-126.11	340.1	14.0	288.5	265.0	23.47	12.294		
4,900.0	4,848.6	4,906.9	4,877.5	14.7	12.6	-123.44	357.0	15.4	277.4	253.2	24.17	11.476		
5,000.0	4,948.6	5,005.4	4,974.5	14.8	12.9	-120.57	373.9	16.9	266.9	242.0	24.91	10.717		

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design				Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-423 - Wellbore #1 - Plan #1 (3-15-16)									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			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,100.0	5,048.6	5,103.9	5,071.6	15.0	13.3	-117.47	390.9	18.3	257.2	231.6	25.67	10.020			
5,200.0	5,148.6	5,202.4	5,168.6	15.1	13.6	-114.15	407.8	19.8	248.3	221.9	26.46	9.385			
5,300.0	5,248.6	5,300.9	5,265.6	15.3	14.0	-110.60	424.7	21.2	240.3	213.1	27.27	8.813			
5,400.0	5,348.6	5,399.4	5,362.7	15.5	14.3	-106.82	441.6	22.6	233.3	205.3	28.10	8.305			
5,500.0	5,448.6	5,497.9	5,459.7	15.6	14.7	-102.84	458.5	24.1	227.5	198.5	28.93	7.863			
5,600.0	5,548.6	5,595.5	5,555.9	15.8	15.0	-98.82	474.8	25.5	222.8	193.1	29.71	7.500			
5,700.0	5,648.6	5,693.0	5,652.4	16.0	15.3	-95.41	488.3	26.6	219.9	189.6	30.36	7.244			
5,800.0	5,748.6	5,791.3	5,750.1	16.1	15.5	-92.76	498.5	27.5	218.3	187.4	30.92	7.061			
5,900.0	5,848.6	5,890.1	5,848.8	16.3	15.7	-90.96	505.4	28.1	217.5	186.1	31.39	6.928			
6,000.0	5,948.6	5,989.4	5,947.9	16.5	15.9	-90.03	508.9	28.4	217.1	185.4	31.79	6.831			
6,058.2	6,006.8	6,047.3	6,005.8	16.6	16.0	90.33	509.4	28.4	217.1	185.1	31.99	6.786			
6,100.0	6,048.6	6,089.0	6,047.6	16.6	16.1	90.38	509.4	28.4	217.1	185.0	32.13	6.757			
6,200.0	6,147.8	6,189.0	6,147.5	16.7	16.2	93.07	507.7	28.4	217.4	185.0	32.43	6.704			
6,300.0	6,244.6	6,290.7	6,248.2	16.6	16.2	96.15	494.4	28.4	218.4	185.9	32.49	6.722			
6,400.0	6,337.4	6,394.0	6,347.9	16.5	16.2	99.12	467.4	28.4	219.9	187.6	32.28	6.813			
6,500.0	6,424.5	6,499.0	6,444.4	16.3	16.0	101.92	426.3	28.4	221.9	190.1	31.83	6.972			
6,600.0	6,504.5	6,605.6	6,535.8	16.0	15.8	104.47	371.5	28.4	224.3	193.1	31.22	7.185			
6,700.0	6,576.0	6,713.8	6,619.8	15.8	15.6	106.74	303.5	28.4	226.8	196.3	30.53	7.428			
6,800.0	6,637.8	6,823.5	6,694.3	15.6	15.5	108.69	223.1	28.4	229.3	199.3	29.92	7.661			
6,900.0	6,688.8	6,934.5	6,757.1	15.5	15.4	110.29	131.7	28.4	231.5	202.0	29.55	7.834			
7,000.0	6,728.1	7,046.5	6,806.5	15.5	15.6	111.50	31.2	28.4	233.4	203.8	29.57	7.891			
7,100.0	6,755.1	7,159.4	6,840.9	15.9	16.0	112.33	-76.2	28.4	234.7	204.6	30.12	7.793			
7,200.0	6,769.3	7,272.8	6,859.1	16.5	16.7	112.76	-188.0	28.4	235.4	204.2	31.24	7.536			
7,300.0	6,771.4	7,380.8	6,862.0	17.3	17.5	112.88	-295.8	28.4	235.6	202.8	32.81	7.182			
7,400.0	6,770.8	7,480.8	6,862.0	18.3	18.5	113.02	-395.8	28.4	235.9	201.3	34.60	6.817			
7,500.0	6,770.1	7,580.8	6,862.0	19.4	19.6	113.16	-495.8	28.4	236.1	199.5	36.64	6.444			
7,600.0	6,769.5	7,680.8	6,862.0	20.6	20.8	113.30	-595.8	28.4	236.4	197.5	38.90	6.076			
7,700.0	6,768.9	7,780.8	6,862.0	22.0	22.1	113.44	-695.8	28.4	236.6	195.3	41.34	5.724			
7,800.0	6,768.2	7,880.8	6,862.0	23.4	23.5	113.58	-795.8	28.4	236.9	193.0	43.93	5.393			
7,900.0	6,767.6	7,980.8	6,862.0	24.8	24.9	113.72	-895.8	28.4	237.1	190.5	46.63	5.085			
8,000.0	6,767.0	8,080.8	6,862.0	26.4	26.5	113.86	-995.8	28.4	237.4	188.0	49.44	4.802			
8,100.0	6,766.4	8,180.7	6,862.0	27.9	28.0	114.00	-1,095.8	28.4	237.6	185.3	52.33	4.541			
8,200.0	6,765.7	8,280.7	6,862.0	29.6	29.7	114.13	-1,195.8	28.4	237.9	182.6	55.29	4.303			
8,300.0	6,765.1	8,380.7	6,862.0	31.2	31.3	114.27	-1,295.8	28.4	238.2	179.9	58.31	4.084			
8,400.0	6,764.5	8,480.7	6,862.0	32.9	33.0	114.41	-1,395.8	28.4	238.4	177.0	61.37	3.885			
8,500.0	6,763.8	8,580.7	6,862.0	34.6	34.7	114.55	-1,495.8	28.4	238.7	174.2	64.48	3.702			
8,600.0	6,763.2	8,680.7	6,862.0	36.3	36.4	114.68	-1,595.8	28.4	238.9	171.3	67.61	3.534			
8,700.0	6,762.6	8,780.7	6,862.0	38.0	38.1	114.82	-1,695.8	28.4	239.2	168.4	70.78	3.380			
8,800.0	6,762.0	8,880.7	6,862.0	39.8	39.9	114.96	-1,795.8	28.4	239.5	165.5	73.97	3.238			
8,900.0	6,761.3	8,980.7	6,862.0	41.6	41.7	115.09	-1,895.8	28.4	239.7	162.6	77.17	3.106			
9,000.0	6,760.7	9,080.7	6,862.0	43.4	43.5	115.23	-1,995.8	28.4	240.0	159.6	80.40	2.985			
9,100.0	6,760.1	9,180.7	6,862.0	45.2	45.3	115.37	-2,095.8	28.4	240.3	156.6	83.63	2.873			
9,200.0	6,759.4	9,280.7	6,862.0	47.0	47.1	115.50	-2,195.8	28.4	240.5	153.7	86.88	2.769			
9,300.0	6,758.8	9,380.7	6,862.0	48.8	48.9	115.64	-2,295.8	28.4	240.8	150.7	90.14	2.672			
9,400.0	6,758.2	9,480.7	6,862.0	50.6	50.7	115.77	-2,395.8	28.4	241.1	147.7	93.40	2.581			
9,500.0	6,757.6	9,580.7	6,862.0	52.4	52.5	115.90	-2,495.8	28.4	241.4	144.7	96.68	2.497			
9,600.0	6,756.9	9,680.7	6,862.0	54.3	54.4	116.04	-2,595.8	28.4	241.6	141.7	99.95	2.418			
9,700.0	6,756.3	9,780.7	6,862.0	56.1	56.2	116.17	-2,695.8	28.4	241.9	138.7	103.23	2.343			
9,800.0	6,755.7	9,880.7	6,862.0	57.9	58.1	116.31	-2,795.8	28.4	242.2	135.7	106.51	2.274			
9,900.0	6,755.0	9,980.7	6,862.0	59.8	59.9	116.44	-2,895.8	28.4	242.5	132.7	109.79	2.208			

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-423 - Wellbore #1 - Plan #1 (3-15-16)													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)			
10,000.0	6,754.4	10,080.7	6,862.0	61.6	61.8	116.57	-2,995.8	28.4	242.7	129.7	113.08	2.147		
10,100.0	6,753.8	10,180.7	6,862.0	63.5	63.6	116.70	-3,095.8	28.4	243.0	126.7	116.36	2.089		
10,200.0	6,753.2	10,280.7	6,862.0	65.4	65.5	116.84	-3,195.8	28.4	243.3	123.7	119.65	2.034		
10,300.0	6,752.5	10,380.7	6,862.0	67.2	67.4	116.97	-3,295.8	28.4	243.6	120.7	122.93	1.982		
10,400.0	6,751.9	10,480.7	6,862.0	69.1	69.2	117.10	-3,395.8	28.4	243.9	117.7	126.21	1.932		
10,500.0	6,751.3	10,580.7	6,862.0	71.0	71.1	117.23	-3,495.8	28.4	244.2	114.7	129.49	1.886		
10,600.0	6,750.6	10,680.7	6,862.0	72.8	73.0	117.36	-3,595.8	28.4	244.5	111.7	132.76	1.841		
10,700.0	6,750.0	10,780.7	6,862.0	74.7	74.8	117.49	-3,695.8	28.4	244.7	108.7	136.04	1.799		
10,800.0	6,749.4	10,880.7	6,862.0	76.6	76.7	117.62	-3,795.8	28.4	245.0	105.7	139.31	1.759		
10,900.0	6,748.8	10,980.7	6,862.0	78.5	78.6	117.75	-3,895.8	28.4	245.3	102.8	142.58	1.721		
11,000.0	6,748.1	11,080.7	6,862.0	80.4	80.5	117.88	-3,995.8	28.4	245.6	99.8	145.84	1.684		
11,100.0	6,747.5	11,180.7	6,862.0	82.2	82.4	118.01	-4,095.8	28.4	245.9	96.8	149.10	1.649		
11,200.0	6,746.9	11,280.7	6,862.0	84.1	84.3	118.14	-4,195.8	28.4	246.2	93.9	152.36	1.616		
11,300.0	6,746.2	11,380.7	6,862.0	86.0	86.1	118.27	-4,295.8	28.4	246.5	90.9	155.61	1.584		
11,400.0	6,745.6	11,480.7	6,862.0	87.9	88.0	118.40	-4,395.8	28.4	246.8	88.0	158.86	1.554		
11,500.0	6,745.0	11,580.7	6,862.0	89.8	89.9	118.53	-4,495.8	28.4	247.1	85.0	162.10	1.524		
11,600.0	6,744.4	11,680.7	6,862.0	91.7	91.8	118.65	-4,595.8	28.4	247.4	82.1	165.34	1.496 Level 3		
11,700.0	6,743.7	11,780.7	6,862.0	93.6	93.7	118.78	-4,695.8	28.4	247.7	79.1	168.57	1.469 Level 3		
11,800.0	6,743.1	11,880.7	6,862.0	95.5	95.6	118.91	-4,795.8	28.4	248.0	76.2	171.80	1.444 Level 3		
11,900.0	6,742.5	11,980.7	6,862.0	97.4	97.5	119.04	-4,895.8	28.4	248.3	73.3	175.02	1.419 Level 3		
12,000.0	6,741.8	12,080.7	6,862.0	99.3	99.4	119.16	-4,995.8	28.4	248.6	70.4	178.24	1.395 Level 3		
12,100.0	6,741.2	12,180.7	6,862.0	101.2	101.3	119.29	-5,095.8	28.4	248.9	67.5	181.45	1.372 Level 3		
12,200.0	6,740.6	12,280.7	6,862.0	103.1	103.2	119.41	-5,195.8	28.4	249.2	64.6	184.66	1.350 Level 3		
12,300.0	6,740.0	12,380.7	6,862.0	104.9	105.1	119.54	-5,295.7	28.4	249.5	61.7	187.86	1.328 Level 3		
12,400.0	6,739.3	12,480.7	6,862.0	106.8	107.0	119.67	-5,395.7	28.4	249.9	58.8	191.06	1.308 Level 3		
12,500.0	6,738.7	12,580.7	6,862.0	108.7	108.9	119.79	-5,495.7	28.4	250.2	55.9	194.25	1.288 Level 3		
12,600.0	6,738.1	12,680.7	6,862.0	110.6	110.8	119.91	-5,595.7	28.4	250.5	53.1	197.43	1.269 Level 3		
12,700.0	6,737.5	12,780.7	6,862.0	112.5	112.7	120.04	-5,695.7	28.4	250.8	50.2	200.61	1.250 Level 3		
12,800.0	6,736.8	12,880.7	6,862.0	114.4	114.6	120.16	-5,795.7	28.4	251.1	47.3	203.78	1.232 Level 2		
12,900.0	6,736.2	12,980.7	6,862.0	116.4	116.5	120.29	-5,895.7	28.4	251.4	44.5	206.95	1.215 Level 2		
13,000.0	6,735.6	13,080.7	6,862.0	118.3	118.4	120.41	-5,995.7	28.4	251.7	41.6	210.11	1.198 Level 2		
13,100.0	6,734.9	13,180.6	6,862.0	120.2	120.3	120.53	-6,095.7	28.4	252.1	38.8	213.26	1.182 Level 2		
13,200.0	6,734.3	13,280.6	6,862.0	122.1	122.2	120.66	-6,195.7	28.4	252.4	36.0	216.41	1.166 Level 2		
13,300.0	6,733.7	13,380.6	6,862.0	124.0	124.1	120.78	-6,295.7	28.4	252.7	33.2	219.55	1.151 Level 2		
13,400.0	6,733.1	13,480.6	6,862.0	125.9	126.0	120.90	-6,395.7	28.4	253.0	30.3	222.68	1.136 Level 2		
13,500.0	6,732.4	13,580.6	6,862.0	127.8	127.9	121.02	-6,495.7	28.4	253.4	27.5	225.81	1.122 Level 2		
13,600.0	6,731.8	13,680.6	6,862.0	129.7	129.8	121.14	-6,595.7	28.4	253.7	24.7	228.93	1.108 Level 2		
13,700.0	6,731.2	13,780.6	6,862.0	131.6	131.7	121.27	-6,695.7	28.4	254.0	22.0	232.05	1.095 Level 2		
13,800.0	6,730.5	13,880.6	6,862.0	133.5	133.6	121.39	-6,795.7	28.4	254.3	19.2	235.16	1.082 Level 2		
13,900.0	6,729.9	13,980.6	6,862.0	135.4	135.5	121.51	-6,895.7	28.4	254.7	16.4	238.26	1.069 Level 2		
14,000.0	6,729.3	14,080.6	6,862.0	137.3	137.4	121.63	-6,995.7	28.4	255.0	13.6	241.36	1.056 Level 2		
14,100.0	6,728.7	14,180.6	6,862.0	139.2	139.4	121.75	-7,095.7	28.4	255.3	10.9	244.45	1.044 Level 2		
14,200.0	6,728.0	14,280.6	6,862.0	141.1	141.3	121.87	-7,195.7	28.4	255.6	8.1	247.53	1.033 Level 2		
14,300.0	6,727.4	14,380.6	6,862.0	143.0	143.2	121.99	-7,295.7	28.4	256.0	5.4	250.61	1.021 Level 2		
14,363.3	6,727.0	14,444.0	6,862.0	144.2	144.4	122.06	-7,359.0	28.4	256.2	3.6	252.55	1.014 Level 2, ES, SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-243 - Wellbore #1 - Plan #1 (3-15-16)													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 Depth (ft)	Vertical Depth Depth (ft)	Measured Depth Depth (ft)	Vertical Depth Depth (ft)	Reference  (ft)	Offset  (ft)	Highside Toolface Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres Centres (ft)	Between Ellipses Ellipses (ft)	Minimum Separation Separation (ft)	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	15.0	15.0	15.0	0.00	N/A			
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	15.0	15.0	14.8	0.22	66.939			
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	15.0	15.0	14.4	0.67	22.313			
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	15.0	15.0	13.9	1.12	13.388			
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	15.0	15.0	13.5	1.57	9.563 CC			
500.0	500.0	499.7	499.7	1.0	1.0	86.57	1.0	15.9	16.0	13.9	2.02	7.904			
600.0	600.0	599.3	599.2	1.2	1.2	78.39	3.8	18.6	19.0	16.5	2.47	7.693			
700.0	700.0	698.6	698.3	1.5	1.5	69.55	8.6	23.0	24.6	21.7	2.92	8.419			
800.0	800.0	797.5	796.8	1.7	1.7	62.44	15.2	29.1	33.0	29.6	3.37	9.770			
900.0	900.0	896.0	894.6	1.9	2.0	32.45	23.6	36.9	43.0	39.2	3.82	11.259			
1,000.0	999.9	994.3	991.9	2.1	2.3	30.57	33.9	46.4	53.5	49.2	4.27	12.507			
1,100.0	1,099.7	1,092.2	1,088.4	2.4	2.6	29.94	45.9	57.5	64.2	59.4	4.74	13.554			
1,200.0	1,199.3	1,189.9	1,184.3	2.6	2.9	30.02	59.7	70.3	75.1	69.9	5.21	14.432			
1,300.0	1,298.6	1,288.7	1,280.8	2.8	3.3	30.63	75.1	84.5	85.7	80.0	5.69	15.065			
1,400.0	1,397.5	1,388.3	1,378.1	3.1	3.7	31.92	90.8	99.0	94.3	88.1	6.19	15.219			
1,500.0	1,496.1	1,488.0	1,475.6	3.4	4.2	33.81	106.4	113.4	100.7	93.9	6.72	14.976			
1,600.0	1,594.2	1,587.8	1,573.0	3.8	4.6	36.21	122.0	127.9	105.3	98.0	7.29	14.439			
1,700.0	1,692.3	1,687.6	1,670.5	4.1	5.0	38.54	137.7	142.4	109.9	102.0	7.90	13.908			
1,800.0	1,790.4	1,787.4	1,768.0	4.5	5.5	40.68	153.3	156.8	114.6	106.1	8.54	13.429			
1,900.0	1,888.5	1,887.2	1,865.5	4.9	5.9	42.64	169.0	171.3	119.5	110.3	9.20	12.997			
2,000.0	1,986.5	1,987.0	1,963.0	5.2	6.4	44.45	184.6	185.8	124.5	114.6	9.88	12.606			
2,100.0	2,084.6	2,086.8	2,060.5	5.6	6.8	46.12	200.3	200.2	129.6	119.1	10.58	12.253			
2,200.0	2,182.7	2,186.6	2,158.0	6.0	7.3	47.66	215.9	214.7	134.9	123.6	11.30	11.934			
2,300.0	2,280.8	2,286.4	2,255.5	6.4	7.7	49.09	231.6	229.2	140.2	128.2	12.04	11.646			
2,400.0	2,378.9	2,386.2	2,353.0	6.8	8.2	50.41	247.2	243.6	145.6	132.8	12.79	11.385			
2,500.0	2,476.9	2,486.0	2,450.5	7.2	8.6	51.63	262.9	258.1	151.1	137.5	13.55	11.149			
2,600.0	2,575.0	2,585.8	2,548.0	7.6	9.1	52.77	278.5	272.6	156.6	142.3	14.32	10.935			
2,700.0	2,673.1	2,685.6	2,645.5	8.0	9.5	53.83	294.2	287.0	162.2	147.1	15.10	10.740			
2,800.0	2,771.2	2,785.4	2,743.0	8.4	10.0	54.82	309.8	301.5	167.8	151.9	15.89	10.562			
2,900.0	2,869.3	2,885.2	2,840.5	8.9	10.4	55.75	325.4	316.0	173.5	156.8	16.68	10.400			
3,000.0	2,967.3	2,985.0	2,938.0	9.3	10.9	56.61	341.1	330.4	179.2	161.8	17.48	10.251			
3,100.0	3,065.4	3,084.8	3,035.5	9.7	11.3	57.43	356.7	344.9	185.0	166.7	18.29	10.115			
3,200.0	3,163.5	3,184.6	3,133.0	10.1	11.8	58.19	372.4	359.4	190.8	171.7	19.10	9.990			
3,300.0	3,261.6	3,284.4	3,230.5	10.5	12.2	58.91	388.0	373.8	196.7	176.7	19.92	9.874			
3,400.0	3,359.7	3,384.2	3,328.0	10.9	12.7	59.58	403.7	388.3	202.5	181.8	20.73	9.768			
3,500.0	3,457.7	3,484.0	3,425.5	11.3	13.2	60.22	419.3	402.8	208.4	186.9	21.55	9.669			
3,600.0	3,555.8	3,583.8	3,523.0	11.8	13.6	60.83	435.0	417.2	214.3	191.9	22.38	9.577			
3,700.0	3,653.9	3,683.6	3,620.5	12.2	14.1	61.40	450.6	431.7	220.3	197.1	23.20	9.492			
3,800.0	3,752.0	3,785.2	3,719.8	12.6	14.5	61.99	466.4	446.3	226.1	202.1	24.03	9.411			
3,900.0	3,850.4	3,891.0	3,823.7	12.9	14.9	62.68	480.7	459.5	231.0	206.3	24.71	9.350			
4,000.0	3,949.5	3,996.8	3,928.4	13.2	15.2	63.21	492.2	470.2	235.0	209.7	25.30	9.287			
4,100.0	4,048.9	4,102.8	4,033.7	13.4	15.4	63.61	500.9	478.2	237.9	212.1	25.80	9.221			
4,200.0	4,148.7	4,208.8	4,139.5	13.6	15.6	63.86	506.7	483.6	239.9	213.7	26.22	9.150			
4,300.0	4,248.6	4,314.9	4,245.5	13.8	15.8	63.99	509.6	486.3	240.9	214.4	26.56	9.073			
4,400.0	4,348.6	4,418.0	4,348.6	13.9	15.9	63.96	510.0	486.6	241.1	214.2	26.83	8.985			
4,500.0	4,448.6	4,518.0	4,448.6	14.1	16.0	63.96	510.0	486.6	241.1	213.9	27.13	8.886			
4,600.0	4,548.6	4,618.0	4,548.6	14.2	16.2	63.96	510.0	486.6	241.1	213.6	27.43	8.787			
4,700.0	4,648.6	4,718.0	4,648.6	14.4	16.3	63.96	510.0	486.6	241.1	213.3	27.74	8.690			
4,800.0	4,748.6	4,818.0	4,748.6	14.5	16.4	63.96	510.0	486.6	241.1	213.0	28.05	8.593			
4,900.0	4,848.6	4,918.0	4,848.6	14.7	16.6	63.96	510.0	486.6	241.1	212.7	28.37	8.498			
5,000.0	4,948.6	5,018.0	4,948.6	14.8	16.7	63.96	510.0	486.6	241.1	212.4	28.69	8.404			

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-243 - Wellbore #1 - Plan #1 (3-15-16)											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			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,100.0	5,048.6	5,118.0	5,048.6	15.0	16.9	89.76	510.0	486.6	241.1	212.1	29.01	8.310			
5,200.0	5,148.6	5,218.0	5,148.6	15.1	17.0	89.76	510.0	486.6	241.1	211.7	29.33	8.218			
5,300.0	5,248.6	5,318.0	5,248.6	15.3	17.1	89.76	510.0	486.6	241.1	211.4	29.66	8.127			
5,400.0	5,348.6	5,418.0	5,348.6	15.5	17.3	89.76	510.0	486.6	241.1	211.1	30.00	8.037			
5,500.0	5,448.6	5,518.0	5,448.6	15.6	17.4	89.76	510.0	486.6	241.1	210.7	30.33	7.948			
5,600.0	5,548.6	5,618.0	5,548.6	15.8	17.6	89.76	510.0	486.6	241.1	210.4	30.67	7.861			
5,700.0	5,648.6	5,718.0	5,648.6	16.0	17.7	89.76	510.0	486.6	241.1	210.1	31.01	7.774			
5,800.0	5,748.6	5,818.0	5,748.6	16.1	17.9	89.76	510.0	486.6	241.1	209.7	31.35	7.689			
5,900.0	5,848.6	5,918.0	5,848.6	16.3	18.0	89.76	510.0	486.6	241.1	209.4	31.70	7.605			
6,000.0	5,948.6	6,018.0	5,948.6	16.5	18.2	89.77	510.0	486.6	241.1	209.0	32.05	7.523			
6,024.6	5,973.2	6,042.7	5,973.2	16.5	18.2	-90.13	509.4	486.6	241.1	208.9	32.13	7.503			
6,100.0	6,048.6	6,117.6	6,047.8	16.6	18.3	-88.76	502.7	486.6	241.1	208.7	32.46	7.428			
6,200.0	6,147.8	6,216.1	6,144.2	16.7	18.2	-86.79	482.9	486.6	241.5	208.8	32.69	7.386			
6,300.0	6,244.6	6,313.5	6,236.3	16.6	18.1	-84.88	451.3	486.6	242.0	209.4	32.69	7.405			
6,400.0	6,337.4	6,410.0	6,322.8	16.5	18.0	-83.08	408.7	486.6	242.9	210.4	32.47	7.480			
6,500.0	6,424.5	6,505.6	6,402.5	16.3	17.8	-81.40	356.1	486.6	243.8	211.7	32.08	7.601			
6,600.0	6,504.5	6,600.0	6,474.2	16.0	17.5	-79.90	294.7	486.6	244.9	213.3	31.60	7.750			
6,700.0	6,576.0	6,694.6	6,537.9	15.8	17.3	-78.55	224.9	486.6	246.0	214.9	31.12	7.904			
6,800.0	6,637.8	6,788.1	6,592.0	15.6	17.1	-77.41	148.6	486.6	247.0	216.3	30.77	8.029			
6,900.0	6,688.8	6,881.2	6,636.1	15.5	16.9	-76.47	66.7	486.6	248.0	217.3	30.65	8.089			
7,000.0	6,728.1	6,973.9	6,669.8	15.5	16.7	-75.74	-19.6	486.6	248.7	217.8	30.89	8.052			
7,100.0	6,755.1	7,066.3	6,692.7	15.9	16.7	-75.24	-109.0	486.6	249.3	217.7	31.56	7.899			
7,200.0	6,769.3	7,158.6	6,704.7	16.5	17.1	-74.96	-200.4	486.6	249.6	216.9	32.68	7.639			
7,300.0	6,771.4	7,253.6	6,706.4	17.3	17.8	-74.91	-295.4	486.6	249.7	215.5	34.22	7.297			
7,400.0	6,770.8	7,353.6	6,705.7	18.3	18.8	-74.91	-395.4	486.6	249.7	213.6	36.07	6.922			
7,500.0	6,770.1	7,453.6	6,705.1	19.4	19.9	-74.91	-495.4	486.6	249.7	211.5	38.19	6.537			
7,600.0	6,769.5	7,553.6	6,704.5	20.6	21.1	-74.91	-595.4	486.6	249.7	209.1	40.55	6.157			
7,700.0	6,768.9	7,653.6	6,703.9	22.0	22.4	-74.91	-695.4	486.6	249.7	206.6	43.10	5.793			
7,800.0	6,768.2	7,753.6	6,703.2	23.4	23.8	-74.91	-795.4	486.6	249.7	203.9	45.81	5.450			
7,900.0	6,767.6	7,853.6	6,702.6	24.8	25.3	-74.91	-895.4	486.6	249.7	201.0	48.66	5.131			
8,000.0	6,767.0	7,953.6	6,702.0	26.4	26.8	-74.91	-995.4	486.6	249.7	198.1	51.62	4.837			
8,100.0	6,766.4	8,053.6	6,701.3	27.9	28.3	-74.91	-1,095.4	486.6	249.7	195.0	54.67	4.567			
8,200.0	6,765.7	8,153.6	6,700.7	29.6	29.9	-74.91	-1,195.4	486.6	249.7	191.9	57.80	4.320			
8,300.0	6,765.1	8,253.6	6,700.1	31.2	31.6	-74.91	-1,295.4	486.6	249.7	188.7	61.00	4.093			
8,400.0	6,764.5	8,353.6	6,699.5	32.9	33.2	-74.91	-1,395.4	486.6	249.7	185.4	64.26	3.886			
8,500.0	6,763.8	8,453.6	6,698.8	34.6	34.9	-74.91	-1,495.4	486.6	249.7	182.1	67.56	3.696			
8,600.0	6,763.2	8,553.6	6,698.2	36.3	36.6	-74.91	-1,595.4	486.6	249.7	178.8	70.91	3.521			
8,700.0	6,762.6	8,653.6	6,697.6	38.0	38.3	-74.91	-1,695.4	486.6	249.7	175.4	74.29	3.361			
8,800.0	6,762.0	8,753.6	6,696.9	39.8	40.1	-74.91	-1,795.4	486.6	249.7	172.0	77.71	3.213			
8,900.0	6,761.3	8,853.6	6,696.3	41.6	41.8	-74.91	-1,895.4	486.6	249.7	168.5	81.15	3.077			
9,000.0	6,760.7	8,953.6	6,695.7	43.4	43.6	-74.91	-1,995.4	486.6	249.7	165.1	84.62	2.951			
9,100.0	6,760.1	9,053.6	6,695.1	45.2	45.4	-74.91	-2,095.4	486.6	249.7	161.6	88.11	2.834			
9,200.0	6,759.4	9,153.6	6,694.4	47.0	47.2	-74.91	-2,195.4	486.6	249.7	158.1	91.61	2.725			
9,300.0	6,758.8	9,253.6	6,693.8	48.8	49.0	-74.91	-2,295.4	486.6	249.7	154.6	95.14	2.625			
9,400.0	6,758.2	9,353.6	6,693.2	50.6	50.8	-74.91	-2,395.4	486.6	249.7	151.0	98.67	2.530			
9,500.0	6,757.6	9,453.6	6,692.5	52.4	52.6	-74.91	-2,495.4	486.6	249.7	147.5	102.23	2.443			
9,600.0	6,756.9	9,553.6	6,691.9	54.3	54.4	-74.91	-2,595.4	486.6	249.7	143.9	105.79	2.360			
9,700.0	6,756.3	9,653.6	6,691.3	56.1	56.3	-74.91	-2,695.4	486.6	249.7	140.3	109.36	2.283			
9,800.0	6,755.7	9,753.6	6,690.7	57.9	58.1	-74.91	-2,795.4	486.6	249.7	136.7	112.95	2.211			
9,900.0	6,755.0	9,853.6	6,690.0	59.8	59.9	-74.91	-2,895.4	486.6	249.7	133.1	116.54	2.142			

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-243 - Wellbore #1 - Plan #1 (3-15-16)													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)			
10,000.0	6,754.4	9,953.6	6,689.4	61.6	61.8	-74.91	-2,995.4	486.6	249.7	129.5	120.15	2.078		
10,100.0	6,753.8	10,053.6	6,688.8	63.5	63.6	-74.91	-3,095.4	486.6	249.7	125.9	123.75	2.018		
10,200.0	6,753.2	10,153.6	6,688.1	65.4	65.5	-74.91	-3,195.4	486.6	249.7	122.3	127.37	1.960		
10,300.0	6,752.5	10,253.6	6,687.5	67.2	67.3	-74.91	-3,295.4	486.6	249.7	118.7	130.99	1.906		
10,400.0	6,751.9	10,353.6	6,686.9	69.1	69.2	-74.91	-3,395.4	486.6	249.7	115.1	134.62	1.855		
10,500.0	6,751.3	10,453.6	6,686.3	71.0	71.1	-74.91	-3,495.4	486.6	249.7	111.4	138.25	1.806		
10,600.0	6,750.6	10,553.6	6,685.6	72.8	72.9	-74.91	-3,595.4	486.6	249.7	107.8	141.89	1.760		
10,700.0	6,750.0	10,653.6	6,685.0	74.7	74.8	-74.91	-3,695.4	486.6	249.7	104.2	145.54	1.716		
10,800.0	6,749.4	10,753.6	6,684.4	76.6	76.7	-74.91	-3,795.4	486.6	249.7	100.5	149.18	1.674		
10,900.0	6,748.8	10,853.6	6,683.7	78.5	78.5	-74.91	-3,895.4	486.6	249.7	96.9	152.83	1.634		
11,000.0	6,748.1	10,953.6	6,683.1	80.4	80.4	-74.91	-3,995.4	486.6	249.7	93.2	156.49	1.596		
11,100.0	6,747.5	11,053.6	6,682.5	82.2	82.3	-74.91	-4,095.4	486.6	249.7	89.5	160.15	1.559		
11,200.0	6,746.9	11,153.6	6,681.9	84.1	84.2	-74.91	-4,195.4	486.6	249.7	85.9	163.81	1.524		
11,300.0	6,746.2	11,253.6	6,681.2	86.0	86.1	-74.91	-4,295.4	486.6	249.7	82.2	167.47	1.491 Level 3		
11,400.0	6,745.6	11,353.6	6,680.6	87.9	87.9	-74.91	-4,395.4	486.6	249.7	78.6	171.14	1.459 Level 3		
11,500.0	6,745.0	11,453.6	6,680.0	89.8	89.8	-74.91	-4,495.4	486.6	249.7	74.9	174.81	1.428 Level 3		
11,600.0	6,744.4	11,553.6	6,679.4	91.7	91.7	-74.91	-4,595.4	486.6	249.7	71.2	178.48	1.399 Level 3		
11,700.0	6,743.7	11,653.6	6,678.7	93.6	93.6	-74.91	-4,695.4	486.6	249.7	67.5	182.15	1.371 Level 3		
11,800.0	6,743.1	11,753.6	6,678.1	95.5	95.5	-74.91	-4,795.4	486.6	249.7	63.9	185.83	1.344 Level 3		
11,900.0	6,742.5	11,853.6	6,677.5	97.4	97.4	-74.91	-4,895.3	486.6	249.7	60.2	189.51	1.318 Level 3		
12,000.0	6,741.8	11,953.6	6,676.8	99.3	99.3	-74.91	-4,995.3	486.6	249.7	56.5	193.19	1.292 Level 3		
12,100.0	6,741.2	12,053.6	6,676.2	101.2	101.2	-74.91	-5,095.3	486.6	249.7	52.8	196.87	1.268 Level 3		
12,200.0	6,740.6	12,153.6	6,675.6	103.1	103.1	-74.91	-5,195.3	486.6	249.7	49.1	200.55	1.245 Level 2		
12,300.0	6,740.0	12,253.6	6,675.0	104.9	105.0	-74.91	-5,295.3	486.6	249.7	45.5	204.24	1.223 Level 2		
12,400.0	6,739.3	12,353.6	6,674.3	106.8	106.9	-74.91	-5,395.3	486.6	249.7	41.8	207.92	1.201 Level 2		
12,500.0	6,738.7	12,453.6	6,673.7	108.7	108.8	-74.91	-5,495.3	486.6	249.7	38.1	211.61	1.180 Level 2		
12,600.0	6,738.1	12,553.6	6,673.1	110.6	110.6	-74.91	-5,595.3	486.6	249.7	34.4	215.30	1.160 Level 2		
12,700.0	6,737.5	12,653.6	6,672.4	112.5	112.5	-74.91	-5,695.3	486.6	249.7	30.7	218.99	1.140 Level 2		
12,800.0	6,736.8	12,753.6	6,671.8	114.4	114.4	-74.91	-5,795.3	486.6	249.7	27.0	222.68	1.121 Level 2		
12,900.0	6,736.2	12,853.6	6,671.2	116.4	116.3	-74.91	-5,895.3	486.6	249.7	23.3	226.37	1.103 Level 2		
13,000.0	6,735.6	12,953.6	6,670.6	118.3	118.2	-74.91	-5,995.3	486.6	249.7	19.6	230.07	1.085 Level 2		
13,100.0	6,734.9	13,053.6	6,669.9	120.2	120.1	-74.91	-6,095.3	486.6	249.7	15.9	233.76	1.068 Level 2		
13,200.0	6,734.3	13,153.6	6,669.3	122.1	122.0	-74.91	-6,195.3	486.6	249.7	12.2	237.46	1.052 Level 2		
13,300.0	6,733.7	13,253.6	6,668.7	124.0	123.9	-74.91	-6,295.3	486.6	249.7	8.5	241.16	1.035 Level 2		
13,400.0	6,733.1	13,353.6	6,668.0	125.9	125.9	-74.91	-6,395.3	486.6	249.7	4.8	244.86	1.020 Level 2		
13,500.0	6,732.4	13,453.6	6,667.4	127.8	127.8	-74.91	-6,495.3	486.6	249.7	1.1	248.55	1.005 Level 2		
13,600.0	6,731.8	13,553.6	6,666.8	129.7	129.7	-74.91	-6,595.3	486.6	249.7	-2.6	252.25	0.990 Level 1		
13,700.0	6,731.2	13,653.6	6,666.2	131.6	131.6	-74.91	-6,695.3	486.6	249.7	-6.3	255.95	0.976 Level 1		
13,800.0	6,730.5	13,753.6	6,665.5	133.5	133.5	-74.91	-6,795.3	486.6	249.7	-10.0	259.66	0.962 Level 1		
13,900.0	6,729.9	13,853.6	6,664.9	135.4	135.4	-74.91	-6,895.3	486.6	249.7	-13.7	263.36	0.948 Level 1		
14,000.0	6,729.3	13,953.6	6,664.3	137.3	137.3	-74.91	-6,995.3	486.6	249.7	-17.4	267.06	0.935 Level 1		
14,100.0	6,728.7	14,053.6	6,663.6	139.2	139.2	-74.91	-7,095.3	486.6	249.7	-21.1	270.76	0.922 Level 1		
14,200.0	6,728.0	14,153.6	6,663.0	141.1	141.1	-74.91	-7,195.3	486.6	249.7	-24.8	274.47	0.910 Level 1		
14,300.0	6,727.4	14,253.6	6,662.4	143.0	143.0	-74.91	-7,295.3	486.6	249.7	-28.5	278.17	0.898 Level 1		
14,336.1	6,727.2	14,289.7	6,662.2	143.7	143.7	-74.91	-7,331.4	486.6	249.7	-29.8	279.51	0.893 Level 1		
14,363.3	6,727.0	14,315.2	6,662.0	144.2	144.2	-74.91	-7,356.9	486.6	249.7	-30.8	280.49	0.890 Level 1, ES, SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-343 - Wellbore #1 - Plan #1 (3-15-16)													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)			
0.0	0.0	0.0	0.0	0.0	0.0	90.70	-0.4	30.1	30.1					
100.0	100.0	99.0	99.0	0.1	0.1	90.70	-0.4	30.1	30.1	29.9	0.22	134.559		
200.0	200.0	199.0	199.0	0.3	0.3	90.70	-0.4	30.1	30.1	29.4	0.67	44.778	CC, ES	
300.0	300.0	298.4	298.4	0.6	0.6	89.28	0.4	31.1	31.1	30.0	1.12	27.856		
400.0	400.0	397.6	397.5	0.8	0.8	85.48	2.7	34.2	34.3	32.7	1.57	21.913		
500.0	500.0	496.5	496.3	1.0	1.0	80.54	6.5	39.3	39.9	37.9	2.02	19.772		
600.0	600.0	595.1	594.4	1.2	1.3	75.62	11.9	46.4	48.1	45.7	2.48	19.440		
700.0	700.0	693.1	691.8	1.5	1.5	71.35	18.7	55.5	59.0	56.1	2.94	20.097		
800.0	800.0	790.5	788.2	1.7	1.8	67.90	27.0	66.5	72.6	69.2	3.40	21.327		
900.0	900.0	887.3	883.6	1.9	2.2	39.83	36.7	79.4	87.8	83.9	3.86	22.769		
1,000.0	999.9	983.7	978.2	2.1	2.6	38.79	47.8	94.1	103.5	99.2	4.32	23.961		
1,100.0	1,099.7	1,079.7	1,071.9	2.4	3.0	38.52	60.2	110.7	119.7	114.9	4.80	24.961		
1,200.0	1,199.3	1,175.1	1,164.6	2.6	3.4	38.74	74.0	129.0	136.3	131.0	5.28	25.791		
1,300.0	1,298.6	1,272.1	1,258.2	2.8	3.9	39.34	89.3	149.3	152.9	147.1	5.79	26.389		
1,400.0	1,397.5	1,370.9	1,353.5	3.1	4.4	40.37	104.9	170.1	167.9	161.5	6.32	26.542		
1,500.0	1,496.1	1,470.0	1,449.0	3.4	4.9	41.77	120.6	191.0	180.9	174.0	6.89	26.251		
1,600.0	1,594.2	1,569.1	1,544.7	3.8	5.5	43.51	136.3	211.9	192.5	185.0	7.50	25.658		
1,700.0	1,692.3	1,668.3	1,640.3	4.1	6.0	45.16	152.1	232.9	203.9	195.8	8.14	25.048		
1,800.0	1,790.4	1,767.5	1,736.0	4.5	6.5	46.64	167.8	253.8	215.6	206.8	8.81	24.476		
1,900.0	1,888.5	1,866.7	1,831.7	4.9	7.1	47.97	183.5	274.7	227.3	217.8	9.49	23.946		
2,000.0	1,986.5	1,965.8	1,927.3	5.2	7.6	49.17	199.3	295.6	239.2	229.0	10.20	23.457		
2,100.0	2,084.6	2,065.0	2,023.0	5.6	8.1	50.25	215.0	316.5	251.1	240.2	10.92	23.006		
2,200.0	2,182.7	2,164.2	2,118.6	6.0	8.7	51.23	230.7	337.5	263.2	251.5	11.65	22.593		
2,300.0	2,280.8	2,263.4	2,214.3	6.4	9.2	52.13	246.4	358.4	275.3	262.9	12.39	22.214		
2,400.0	2,378.9	2,362.5	2,310.0	6.8	9.8	52.95	262.2	379.3	287.4	274.3	13.15	21.866		
2,500.0	2,476.9	2,461.7	2,405.6	7.2	10.3	53.71	277.9	400.2	299.7	285.8	13.91	21.547		
2,600.0	2,575.0	2,560.9	2,501.3	7.6	10.9	54.41	293.6	421.1	311.9	297.3	14.68	21.253		
2,700.0	2,673.1	2,660.1	2,596.9	8.0	11.4	55.05	309.3	442.1	324.2	308.8	15.45	20.983		
2,800.0	2,771.2	2,759.2	2,692.6	8.4	11.9	55.65	325.1	463.0	336.6	320.4	16.23	20.733		
2,900.0	2,869.3	2,858.4	2,788.3	8.9	12.5	56.20	340.8	483.9	349.0	332.0	17.02	20.502		
3,000.0	2,967.3	2,957.6	2,883.9	9.3	13.0	56.72	356.5	504.8	361.4	343.6	17.81	20.289		
3,100.0	3,065.4	3,056.8	2,979.6	9.7	13.6	57.20	372.3	525.7	373.8	355.2	18.61	20.090		
3,200.0	3,163.5	3,155.9	3,075.2	10.1	14.1	57.65	388.0	546.6	386.3	366.9	19.41	19.906		
3,300.0	3,261.6	3,255.1	3,170.9	10.5	14.7	58.07	403.7	567.6	398.8	378.6	20.21	19.734		
3,400.0	3,359.7	3,354.3	3,266.6	10.9	15.2	58.47	419.4	588.5	411.3	390.3	21.01	19.574		
3,500.0	3,457.7	3,453.5	3,362.2	11.3	15.8	58.84	435.2	609.4	423.8	402.0	21.82	19.424		
3,600.0	3,555.8	3,554.8	3,459.9	11.8	16.3	59.21	451.2	630.7	436.3	413.7	22.63	19.280		
3,700.0	3,653.9	3,668.9	3,570.8	12.2	16.8	59.79	467.6	652.5	446.7	423.3	23.46	19.041		
3,800.0	3,752.0	3,783.5	3,683.0	12.6	17.2	60.68	481.4	670.9	453.9	429.6	24.30	18.677		
3,900.0	3,850.4	3,898.3	3,796.3	12.9	17.5	61.68	492.5	685.6	458.8	433.8	25.03	18.335		
4,000.0	3,949.5	4,013.2	3,910.4	13.2	17.8	62.51	500.8	696.7	462.2	436.6	25.66	18.016		
4,100.0	4,048.9	4,128.2	4,025.0	13.4	18.0	63.21	506.4	704.2	464.1	437.9	26.20	17.714		
4,200.0	4,148.7	4,243.1	4,139.8	13.6	18.2	63.76	509.3	708.0	464.2	437.6	26.64	17.423		
4,300.0	4,248.6	4,350.9	4,247.6	13.8	18.3	64.12	509.6	708.5	463.1	436.1	26.99	17.158		
4,373.6	4,322.2	4,424.5	4,321.2	13.9	18.4	64.21	509.6	708.5	462.8	435.6	27.20	17.014		
4,400.0	4,348.6	4,450.9	4,347.6	13.9	18.4	89.92	509.6	708.5	462.9	435.7	27.26	16.982		
4,500.0	4,448.6	4,550.9	4,447.6	14.1	18.5	89.92	509.6	708.5	462.9	435.4	27.55	16.802		
4,600.0	4,548.6	4,650.9	4,547.6	14.2	18.7	89.92	509.6	708.5	462.9	435.1	27.85	16.623		
4,700.0	4,648.6	4,750.9	4,647.6	14.4	18.8	89.92	509.6	708.5	462.9	434.8	28.15	16.446		
4,800.0	4,748.6	4,850.9	4,747.6	14.5	18.9	89.92	509.6	708.5	462.9	434.5	28.45	16.270		
4,900.0	4,848.6	4,950.9	4,847.6	14.7	19.0	89.92	509.6	708.5	462.9	434.2	28.76	16.096		

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-343 - Wellbore #1 - Plan #1 (3-15-16)											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)						
5,000.0	4,948.6	5,050.9	4,947.6	14.8	19.1	89.92	509.6	708.5	462.9	433.8	29.07	15.924					
5,100.0	5,048.6	5,150.9	5,047.6	15.0	19.2	89.92	509.6	708.5	462.9	433.5	29.39	15.753					
5,200.0	5,148.6	5,250.9	5,147.6	15.1	19.4	89.92	509.6	708.5	462.9	433.2	29.70	15.584					
5,300.0	5,248.6	5,350.9	5,247.6	15.3	19.5	89.92	509.6	708.5	462.9	432.9	30.03	15.417					
5,400.0	5,348.6	5,450.9	5,347.6	15.5	19.6	89.92	509.6	708.5	462.9	432.6	30.35	15.252					
5,500.0	5,448.6	5,550.9	5,447.6	15.6	19.8	89.92	509.6	708.5	462.9	432.2	30.68	15.089					
5,600.0	5,548.6	5,650.9	5,547.6	15.8	19.9	89.92	509.6	708.5	462.9	431.9	31.01	14.928					
5,700.0	5,648.6	5,750.9	5,647.6	16.0	20.0	89.92	509.6	708.5	462.9	431.6	31.34	14.769					
5,800.0	5,748.6	5,850.9	5,747.6	16.1	20.2	89.92	509.6	708.5	462.9	431.2	31.68	14.612					
5,900.0	5,848.6	5,950.9	5,847.6	16.3	20.3	89.92	509.6	708.5	462.9	430.9	32.02	14.457					
6,000.0	5,948.6	6,050.9	5,947.6	16.5	20.4	89.92	509.6	708.5	462.9	430.6	32.36	14.304					
6,100.0	6,048.6	6,150.9	6,047.6	16.6	20.6	-90.08	508.6	708.5	462.9	430.2	32.68	14.167					
6,200.0	6,147.8	6,251.0	6,146.9	16.7	20.6	-90.10	496.8	708.5	462.9	430.2	32.76	14.131					
6,300.0	6,244.6	6,351.1	6,243.9	16.6	20.5	-90.11	472.2	708.5	462.9	430.3	32.63	14.187					
6,400.0	6,337.4	6,451.3	6,336.8	16.5	20.4	-90.12	435.1	708.5	462.9	430.6	32.33	14.319					
6,500.0	6,424.5	6,551.4	6,424.1	16.3	20.2	-90.13	386.2	708.5	462.9	431.0	31.92	14.503					
6,600.0	6,504.5	6,651.5	6,504.2	16.0	20.0	-90.14	326.2	708.5	462.9	431.4	31.48	14.706					
6,700.0	6,576.0	6,751.7	6,575.9	15.8	19.8	-90.14	256.3	708.5	462.9	431.8	31.10	14.886					
6,800.0	6,637.8	6,851.8	6,637.7	15.6	19.5	-90.14	177.7	708.5	462.9	432.0	30.88	14.992					
6,900.0	6,688.8	6,952.0	6,688.8	15.5	19.3	-90.14	91.6	708.5	462.9	432.0	30.92	14.973					
7,000.0	6,728.1	7,052.1	6,728.2	15.5	19.2	-90.14	-0.4	708.5	462.9	431.6	31.29	14.794					
7,100.0	6,755.1	7,152.3	6,755.2	15.9	19.2	-90.13	-96.8	708.5	462.9	430.9	32.05	14.446					
7,200.0	6,769.3	7,252.4	6,769.4	16.5	19.3	-90.13	-195.8	708.5	462.9	429.7	33.19	13.948					
7,254.4	6,772.3	7,306.9	6,771.6	17.0	19.5	-90.04	-250.2	708.5	462.9	428.9	33.99	13.619					
7,300.0	6,771.4	7,352.5	6,771.4	17.3	19.7	-90.12	-295.9	708.5	462.9	428.2	34.71	13.339					
7,400.0	6,770.8	7,452.5	6,770.7	18.3	20.4	-90.12	-395.9	708.5	462.9	426.4	36.55	12.666					
7,500.0	6,770.1	7,552.5	6,770.1	19.4	21.3	-90.12	-495.9	708.5	462.9	424.2	38.68	11.968					
7,600.0	6,769.5	7,652.5	6,769.5	20.6	22.4	-90.12	-595.8	708.5	462.9	421.9	41.06	11.274					
7,700.0	6,768.9	7,752.5	6,768.8	22.0	23.6	-90.12	-695.8	708.5	462.9	419.3	43.65	10.605					
7,800.0	6,768.2	7,852.5	6,768.2	23.4	24.9	-90.12	-795.8	708.5	462.9	416.5	46.41	9.974					
7,900.0	6,767.6	7,952.5	6,767.6	24.8	26.3	-90.12	-895.8	708.5	462.9	413.6	49.32	9.386					
8,000.0	6,767.0	8,052.5	6,767.0	26.4	27.7	-90.12	-995.8	708.5	462.9	410.6	52.35	8.843					
8,100.0	6,766.4	8,152.5	6,766.3	27.9	29.2	-90.12	-1,095.8	708.5	462.9	407.4	55.48	8.344					
8,200.0	6,765.7	8,252.5	6,765.7	29.6	30.8	-90.12	-1,195.8	708.5	462.9	404.2	58.69	7.887					
8,300.0	6,765.1	8,352.5	6,765.1	31.2	32.3	-90.12	-1,295.8	708.5	462.9	400.9	61.98	7.469					
8,400.0	6,764.5	8,452.5	6,764.4	32.9	34.0	-90.12	-1,395.8	708.5	462.9	397.6	65.32	7.087					
8,500.0	6,763.8	8,552.5	6,763.8	34.6	35.6	-90.12	-1,495.8	708.5	462.9	394.2	68.72	6.737					
8,600.0	6,763.2	8,652.5	6,763.2	36.3	37.3	-90.12	-1,595.8	708.5	462.9	390.8	72.16	6.415					
8,700.0	6,762.6	8,752.5	6,762.6	38.0	38.9	-90.12	-1,695.8	708.5	462.9	387.3	75.64	6.120					
8,800.0	6,762.0	8,852.5	6,761.9	39.8	40.7	-90.12	-1,795.8	708.5	462.9	383.8	79.15	5.849					
8,900.0	6,761.3	8,952.5	6,761.3	41.6	42.4	-90.12	-1,895.8	708.5	462.9	380.2	82.69	5.598					
9,000.0	6,760.7	9,052.5	6,760.7	43.4	44.1	-90.12	-1,995.8	708.5	462.9	376.7	86.26	5.366					
9,100.0	6,760.1	9,152.5	6,760.0	45.2	45.9	-90.12	-2,095.8	708.5	462.9	373.1	89.85	5.152					
9,200.0	6,759.4	9,252.5	6,759.4	47.0	47.6	-90.12	-2,195.8	708.5	462.9	369.5	93.46	4.953					
9,300.0	6,758.8	9,352.5	6,758.8	48.8	49.4	-90.12	-2,295.8	708.5	462.9	365.8	97.09	4.768					
9,400.0	6,758.2	9,452.5	6,758.2	50.6	51.2	-90.12	-2,395.8	708.5	462.9	362.2	100.73	4.596					
9,500.0	6,757.6	9,552.5	6,757.5	52.4	53.0	-90.12	-2,495.8	708.5	462.9	358.5	104.39	4.435					
9,600.0	6,756.9	9,652.5	6,756.9	54.3	54.8	-90.12	-2,595.8	708.5	462.9	354.9	108.06	4.284					
9,700.0	6,756.3	9,752.5	6,756.3	56.1	56.6	-90.12	-2,695.8	708.5	462.9	351.2	111.74	4.143					
9,800.0	6,755.7	9,852.5	6,755.6	57.9	58.4	-90.12	-2,795.8	708.5	462.9	347.5	115.43	4.010					

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 Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-343 - Wellbore #1 - Plan #1 (3-15-16)													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 (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		
9,900.0	6,755.0	9,952.5	6,755.0	59.8	60.3	-90.12	-2,895.8	708.5	462.9	343.8	119.13	3.886		
10,000.0	6,754.4	10,052.5	6,754.4	61.6	62.1	-90.12	-2,995.8	708.5	462.9	340.1	122.84	3.768		
10,100.0	6,753.8	10,152.5	6,753.8	63.5	63.9	-90.12	-3,095.8	708.5	462.9	336.4	126.56	3.658		
10,200.0	6,753.2	10,252.5	6,753.1	65.4	65.8	-90.12	-3,195.8	708.5	462.9	332.6	130.29	3.553		
10,300.0	6,752.5	10,352.5	6,752.5	67.2	67.6	-90.12	-3,295.8	708.5	462.9	328.9	134.02	3.454		
10,400.0	6,751.9	10,452.5	6,751.9	69.1	69.5	-90.12	-3,395.8	708.5	462.9	325.2	137.75	3.361		
10,500.0	6,751.3	10,552.5	6,751.2	71.0	71.3	-90.12	-3,495.8	708.5	462.9	321.4	141.50	3.272		
10,600.0	6,750.6	10,652.5	6,750.6	72.8	73.2	-90.12	-3,595.8	708.5	462.9	317.7	145.24	3.187		
10,700.0	6,750.0	10,752.5	6,750.0	74.7	75.0	-90.12	-3,695.8	708.5	462.9	313.9	149.00	3.107		
10,800.0	6,749.4	10,852.5	6,749.4	76.6	76.9	-90.12	-3,795.8	708.5	462.9	310.2	152.75	3.031		
10,900.0	6,748.8	10,952.5	6,748.7	78.5	78.8	-90.12	-3,895.8	708.5	462.9	306.4	156.51	2.958		
11,000.0	6,748.1	11,052.5	6,748.1	80.4	80.6	-90.12	-3,995.8	708.5	462.9	302.6	160.28	2.888		
11,100.0	6,747.5	11,152.5	6,747.5	82.2	82.5	-90.12	-4,095.8	708.5	462.9	298.9	164.04	2.822		
11,200.0	6,746.9	11,252.5	6,746.9	84.1	84.4	-90.12	-4,195.8	708.5	462.9	295.1	167.82	2.759		
11,300.0	6,746.2	11,352.5	6,746.2	86.0	86.2	-90.12	-4,295.8	708.5	462.9	291.3	171.59	2.698		
11,400.0	6,745.6	11,452.5	6,745.6	87.9	88.1	-90.12	-4,395.8	708.5	462.9	287.6	175.37	2.640		
11,500.0	6,745.0	11,552.5	6,745.0	89.8	90.0	-90.12	-4,495.8	708.5	462.9	283.8	179.15	2.584		
11,600.0	6,744.4	11,652.5	6,744.3	91.7	91.9	-90.12	-4,595.8	708.5	462.9	280.0	182.93	2.531		
11,700.0	6,743.7	11,752.5	6,743.7	93.6	93.8	-90.12	-4,695.8	708.5	462.9	276.2	186.71	2.479		
11,800.0	6,743.1	11,852.5	6,743.1	95.5	95.6	-90.12	-4,795.8	708.5	462.9	272.4	190.50	2.430		
11,900.0	6,742.5	11,952.5	6,742.5	97.4	97.5	-90.12	-4,895.8	708.5	462.9	268.6	194.29	2.383		
12,000.0	6,741.8	12,052.5	6,741.8	99.3	99.4	-90.12	-4,995.8	708.5	462.9	264.8	198.08	2.337		
12,100.0	6,741.2	12,152.5	6,741.2	101.2	101.3	-90.12	-5,095.8	708.5	462.9	261.1	201.87	2.293		
12,200.0	6,740.6	12,252.5	6,740.6	103.1	103.2	-90.12	-5,195.8	708.5	462.9	257.3	205.67	2.251		
12,300.0	6,740.0	12,352.5	6,739.9	104.9	105.1	-90.12	-5,295.8	708.5	462.9	253.5	209.46	2.210		
12,400.0	6,739.3	12,452.5	6,739.3	106.8	107.0	-90.12	-5,395.8	708.5	462.9	249.7	213.26	2.171		
12,500.0	6,738.7	12,552.5	6,738.7	108.7	108.9	-90.12	-5,495.8	708.5	462.9	245.9	217.06	2.133		
12,600.0	6,738.1	12,652.5	6,738.1	110.6	110.7	-90.12	-5,595.7	708.5	462.9	242.1	220.86	2.096		
12,700.0	6,737.5	12,752.5	6,737.4	112.5	112.6	-90.12	-5,695.7	708.5	462.9	238.3	224.66	2.061		
12,800.0	6,736.8	12,852.5	6,736.8	114.4	114.5	-90.12	-5,795.7	708.5	462.9	234.5	228.46	2.026		
12,900.0	6,736.2	12,952.5	6,736.2	116.4	116.4	-90.12	-5,895.7	708.5	462.9	230.7	232.27	1.993		
13,000.0	6,735.6	13,052.5	6,735.5	118.3	118.3	-90.12	-5,995.7	708.5	462.9	226.9	236.07	1.961		
13,100.0	6,734.9	13,152.5	6,734.9	120.2	120.2	-90.12	-6,095.7	708.5	462.9	223.0	239.88	1.930		
13,200.0	6,734.3	13,252.5	6,734.3	122.1	122.1	-90.12	-6,195.7	708.5	462.9	219.2	243.69	1.900		
13,300.0	6,733.7	13,352.5	6,733.7	124.0	124.0	-90.12	-6,295.7	708.5	462.9	215.4	247.50	1.870		
13,400.0	6,733.1	13,452.5	6,733.0	125.9	125.9	-90.12	-6,395.7	708.5	462.9	211.6	251.30	1.842		
13,500.0	6,732.4	13,552.5	6,732.4	127.8	127.8	-90.12	-6,495.7	708.5	462.9	207.8	255.12	1.815		
13,600.0	6,731.8	13,652.5	6,731.8	129.7	129.7	-90.12	-6,595.7	708.5	462.9	204.0	258.93	1.788		
13,700.0	6,731.2	13,752.5	6,731.1	131.6	131.6	-90.12	-6,695.7	708.5	462.9	200.2	262.74	1.762		
13,800.0	6,730.5	13,852.5	6,730.5	133.5	133.5	-90.12	-6,795.7	708.5	462.9	196.4	266.55	1.737		
13,900.0	6,729.9	13,952.5	6,729.9	135.4	135.4	-90.12	-6,895.7	708.5	462.9	192.6	270.36	1.712		
14,000.0	6,729.3	14,052.5	6,729.3	137.3	137.3	-90.12	-6,995.7	708.5	462.9	188.7	274.18	1.688		
14,100.0	6,728.7	14,152.5	6,728.6	139.2	139.2	-90.12	-7,095.7	708.5	462.9	184.9	277.99	1.665		
14,200.0	6,728.0	14,252.5	6,728.0	141.1	141.1	-90.12	-7,195.7	708.5	462.9	181.1	281.81	1.643		
14,300.0	6,727.4	14,352.5	6,727.4	143.0	143.0	-90.12	-7,295.7	708.5	462.9	177.3	285.63	1.621		
14,335.2	6,727.2	14,387.7	6,727.2	143.7	143.7	-90.12	-7,330.9	708.5	462.9	176.0	286.97	1.613		
14,363.3	6,727.0	14,411.8	6,727.0	144.2	144.2	-90.12	-7,355.0	708.5	462.9	175.0	287.97	1.608 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4686.0ft (RKB - 23')

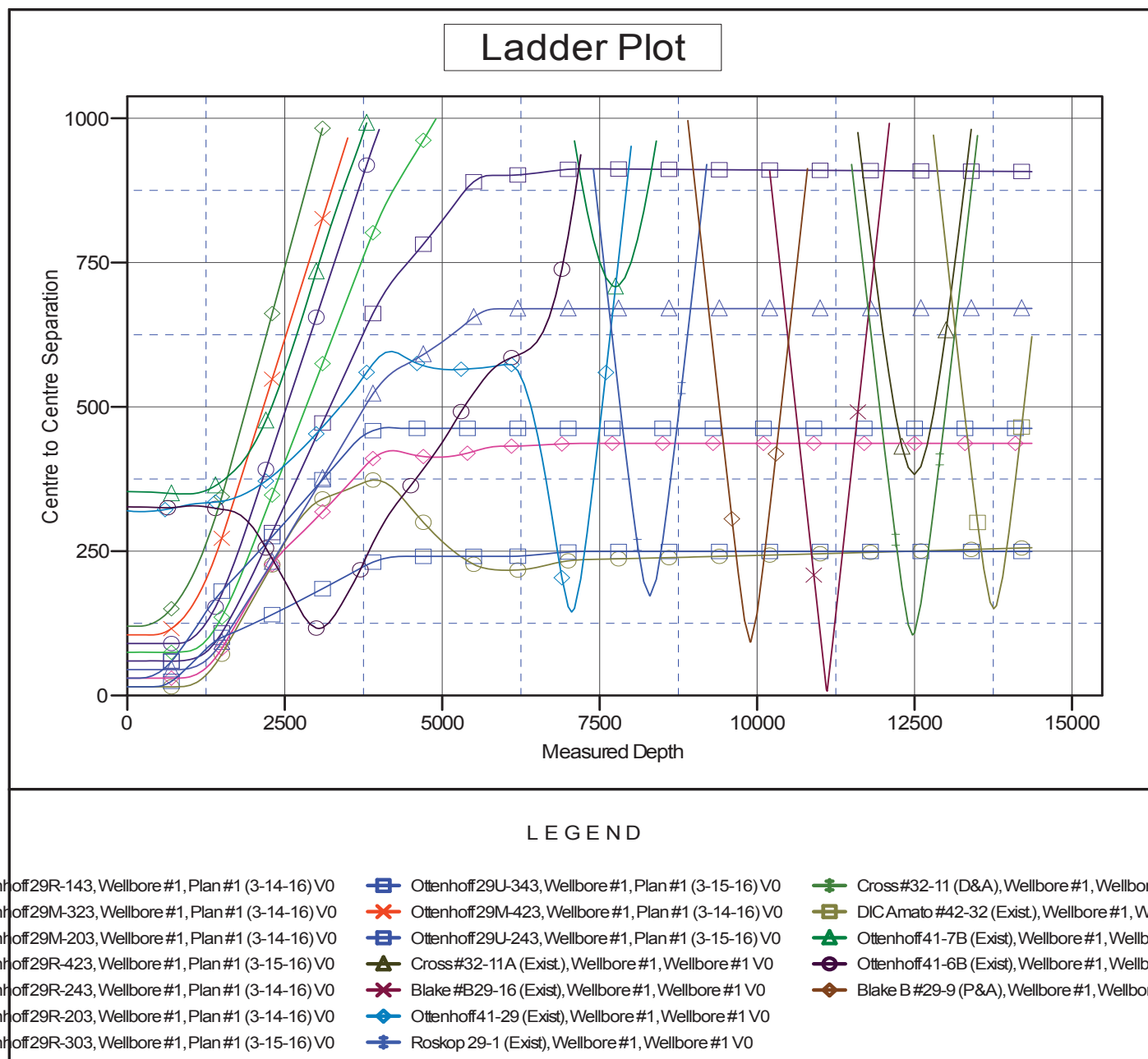
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Ottenhoff 29R-323

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.60°





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-323
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Ottenhoff 29R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-15-16)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4686.0ft (RKB - 23')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

Coordinates are relative to: Ottenhoff 29R-323  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.60°

