

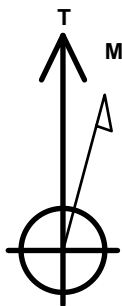
# PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Ottenhoff 29R-243**

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 1381166.53 3259659.48 40.375958 -104.567998  
 RKB - 23' WELL @ 4686.0ft (RKB - 23')

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 557'FNL & 1035'FEL, Sec.29	1.0	0.0	0.0	Point
BHL 2340'FNL & 1902'FEL, Sec.32	6677.0	-7069.4	-821.3	Point
LPL 819'FNL & 1854'FEL, SEC.29	6727.0	-275.7	-817.2	Point



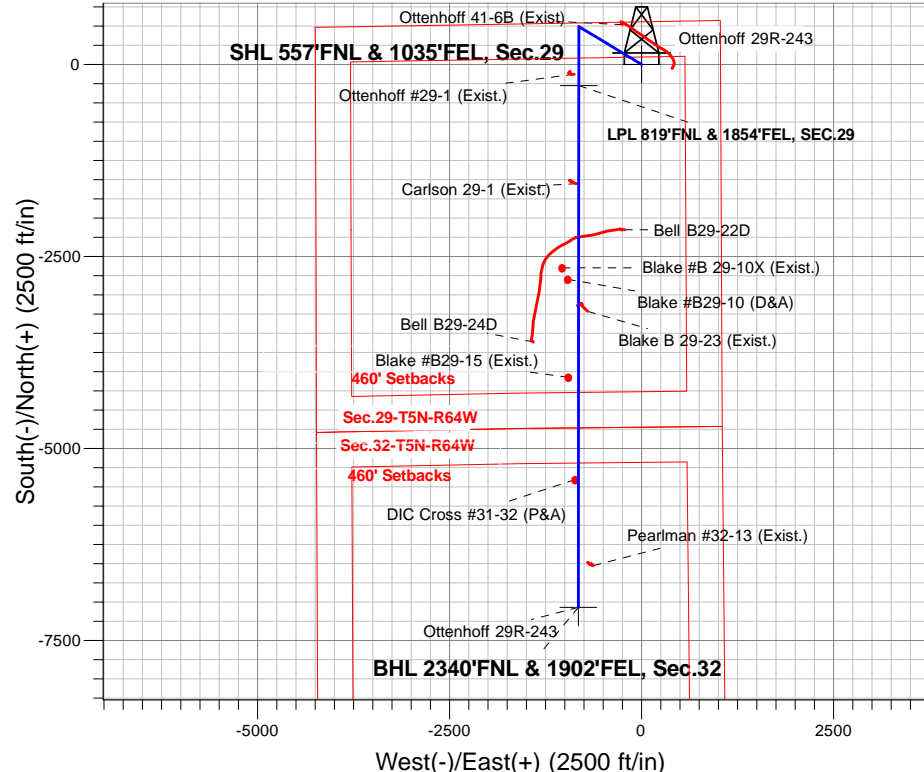
Azimuths to True North  
 Magnetic North: 8.00°

Magnetic Field  
 Strength: 52548.2snT  
 Dip Angle: 66.87°  
 Date: 1/27/2017  
 Model: IGRF2010

Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W  
 Ottenhoff 29R-243  
 Plan #2 (1-25-17)  
 10:35, January 30 2017

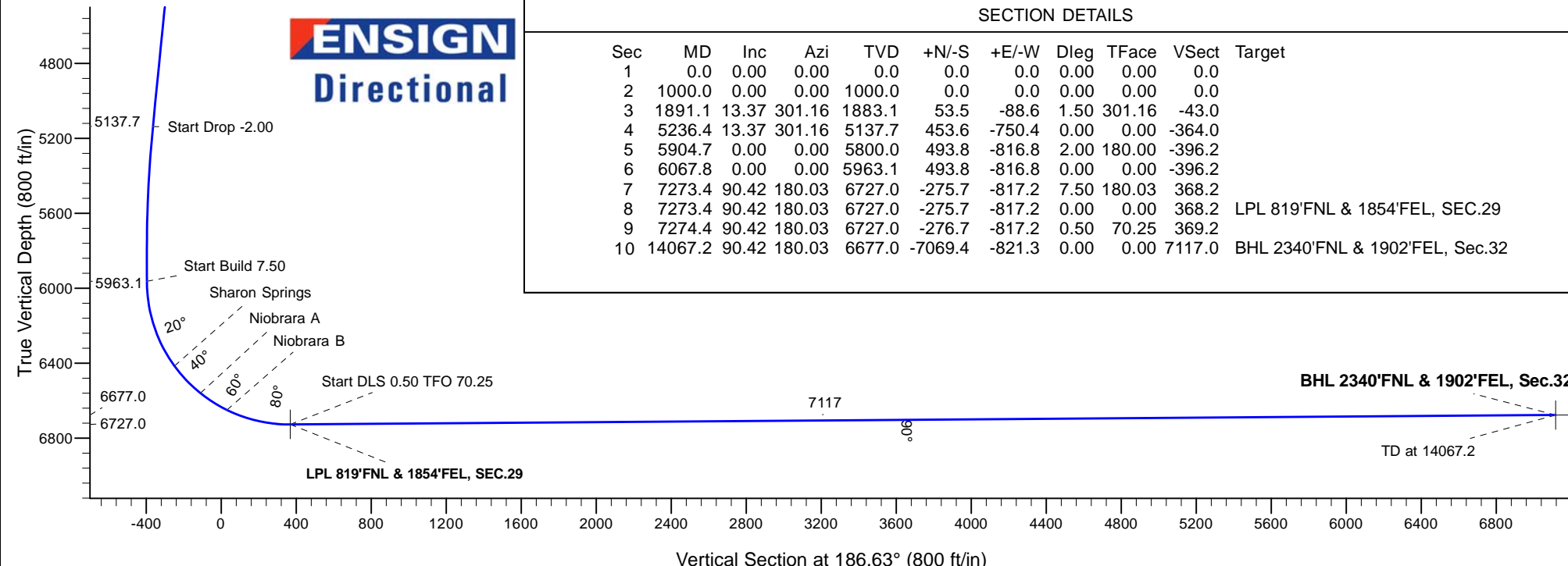
## ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP - Start Build 1.50
5137.7	5236.4	Start Drop -2.00
5963.1	6067.8	Start Build 7.50
6727.0	7273.4	Start DLS 0.50 TFO 70.25
6727.0	7274.4	Start 6792.8 hold at 7274.4 MD
6677.0	14067.2	TD at 14067.2



## 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	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1891.1	13.37	301.16	1883.1	53.5	-88.6	1.50	301.16	-43.0	
4	5236.4	13.37	301.16	5137.7	453.6	-750.4	0.00	0.00	-364.0	
5	5904.7	0.00	0.00	5800.0	493.8	-816.8	2.00	180.00	-396.2	
6	6067.8	0.00	0.00	5963.1	493.8	-816.8	0.00	0.00	-396.2	
7	7273.4	90.42	180.03	6727.0	-275.7	-817.2	7.50	180.03	368.2	
8	7273.4	90.42	180.03	6727.0	-275.7	-817.2	0.00	0.00	368.2	LPL 819'FNL & 1854'FEL, SEC.29
9	7274.4	90.42	180.03	6727.0	-276.7	-817.2	0.50	70.25	369.2	
10	14067.2	90.42	180.03	6677.0	-7069.4	-821.3	0.00	0.00	7117.0	BHL 2340'FNL & 1902'FEL, Sec.32





# **PETROLEUM DEVELOPMENT CORP DJ Basin**

**SEC.29-T5N-R64W**

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

**Ottenhoff 29R-243**

**Wellbore #1**

**Plan: Plan #2 (1-25-17)**

## **Standard Planning Report**

**30 January, 2017**

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (1-25-17)		

<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-243					
Well Position	+N/-S	0.7 ft	Northing:	1,381,166.54 usft	Latitude:	40.375958
	+E/-W	-90.0 ft	Easting:	3,259,659.49 usft	Longitude:	-104.567998
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	1/27/2017	8.00	66.87	52,548

<b>Design</b>	Plan #2 (1-25-17)			
<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	186.63

<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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,891.1	13.37	301.16	1,883.1	53.5	-88.6	1.50	1.50	0.00	301.16	
5,236.4	13.37	301.16	5,137.7	453.6	-750.4	0.00	0.00	0.00	0.00	
5,904.7	0.00	0.00	5,800.0	493.8	-816.8	2.00	-2.00	0.00	180.00	
6,067.8	0.00	0.00	5,963.1	493.8	-816.8	0.00	0.00	0.00	0.00	
7,273.4	90.42	180.03	6,727.0	-275.7	-817.2	7.50	7.50	0.00	180.03	
7,273.4	90.42	180.03	6,727.0	-275.7	-817.2	0.00	0.00	0.00	0.00	LPL 819'FNL & 1854'I
7,274.4	90.42	180.03	6,727.0	-276.7	-817.2	0.50	0.17	0.47	70.25	
14,067.2	90.42	180.03	6,677.0	-7,069.4	-821.3	0.00	0.00	0.00	0.00	BHL 2340'FNL & 1902'I

Database:	US_EDM	Local Co-ordinate Reference:	Well Ottenhoff 29R-243
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-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (1-25-17)		

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
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 1.50									
1,100.0	1.50	301.16	1,100.0	0.7	-1.1	-0.5	1.50	1.50	0.00
1,200.0	3.00	301.16	1,199.9	2.7	-4.5	-2.2	1.50	1.50	0.00
1,300.0	4.50	301.16	1,299.7	6.1	-10.1	-4.9	1.50	1.50	0.00
1,400.0	6.00	301.16	1,399.3	10.8	-17.9	-8.7	1.50	1.50	0.00
1,500.0	7.50	301.16	1,498.6	16.9	-28.0	-13.6	1.50	1.50	0.00
1,600.0	9.00	301.16	1,597.5	24.3	-40.2	-19.5	1.50	1.50	0.00
1,700.0	10.50	301.16	1,696.1	33.1	-54.7	-26.6	1.50	1.50	0.00
1,800.0	12.00	301.16	1,794.2	43.2	-71.4	-34.7	1.50	1.50	0.00
1,891.1	13.37	301.16	1,883.1	53.5	-88.6	-43.0	1.50	1.50	0.00
1,900.0	13.37	301.16	1,891.7	54.6	-90.3	-43.8	0.00	0.00	0.00
2,000.0	13.37	301.16	1,989.0	66.6	-110.1	-53.4	0.00	0.00	0.00
2,100.0	13.37	301.16	2,086.3	78.5	-129.9	-63.0	0.00	0.00	0.00
2,200.0	13.37	301.16	2,183.6	90.5	-149.7	-72.6	0.00	0.00	0.00
2,300.0	13.37	301.16	2,280.9	102.4	-169.4	-82.2	0.00	0.00	0.00
2,400.0	13.37	301.16	2,378.2	114.4	-189.2	-91.8	0.00	0.00	0.00
2,500.0	13.37	301.16	2,475.4	126.4	-209.0	-101.4	0.00	0.00	0.00
2,600.0	13.37	301.16	2,572.7	138.3	-228.8	-111.0	0.00	0.00	0.00
2,700.0	13.37	301.16	2,670.0	150.3	-248.6	-120.6	0.00	0.00	0.00
2,800.0	13.37	301.16	2,767.3	162.2	-268.4	-130.2	0.00	0.00	0.00
2,900.0	13.37	301.16	2,864.6	174.2	-288.2	-139.8	0.00	0.00	0.00
3,000.0	13.37	301.16	2,961.9	186.2	-307.9	-149.4	0.00	0.00	0.00
3,100.0	13.37	301.16	3,059.2	198.1	-327.7	-159.0	0.00	0.00	0.00
3,200.0	13.37	301.16	3,156.5	210.1	-347.5	-168.6	0.00	0.00	0.00
3,300.0	13.37	301.16	3,253.8	222.0	-367.3	-178.2	0.00	0.00	0.00
3,400.0	13.37	301.16	3,351.1	234.0	-387.1	-187.8	0.00	0.00	0.00
3,500.0	13.37	301.16	3,448.4	246.0	-406.9	-197.4	0.00	0.00	0.00
3,583.9	13.37	301.16	3,530.0	256.0	-423.5	-205.4	0.00	0.00	0.00
Parkman Sandstone									
3,600.0	13.37	301.16	3,545.6	257.9	-426.6	-207.0	0.00	0.00	0.00
3,700.0	13.37	301.16	3,642.9	269.9	-446.4	-216.6	0.00	0.00	0.00
3,800.0	13.37	301.16	3,740.2	281.8	-466.2	-226.2	0.00	0.00	0.00
3,900.0	13.37	301.16	3,837.5	293.8	-486.0	-235.8	0.00	0.00	0.00
4,000.0	13.37	301.16	3,934.8	305.8	-505.8	-245.4	0.00	0.00	0.00
4,100.0	13.37	301.16	4,032.1	317.7	-525.6	-255.0	0.00	0.00	0.00
4,200.0	13.37	301.16	4,129.4	329.7	-545.3	-264.6	0.00	0.00	0.00
4,272.6	13.37	301.16	4,200.0	338.4	-559.7	-271.5	0.00	0.00	0.00
Sussex Sandstone									
4,300.0	13.37	301.16	4,226.7	341.7	-565.1	-274.1	0.00	0.00	0.00
4,400.0	13.37	301.16	4,324.0	353.6	-584.9	-283.7	0.00	0.00	0.00
4,500.0	13.37	301.16	4,421.3	365.6	-604.7	-293.3	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Ottenhoff 29R-243
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-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (1-25-17)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,600.0	13.37	301.16	4,518.6	377.5	-624.5	-302.9	0.00	0.00	0.00
4,700.0	13.37	301.16	4,615.8	389.5	-644.3	-312.5	0.00	0.00	0.00
4,800.0	13.37	301.16	4,713.1	401.5	-664.0	-322.1	0.00	0.00	0.00
4,900.0	13.37	301.16	4,810.4	413.4	-683.8	-331.7	0.00	0.00	0.00
5,000.0	13.37	301.16	4,907.7	425.4	-703.6	-341.3	0.00	0.00	0.00
5,100.0	13.37	301.16	5,005.0	437.3	-723.4	-350.9	0.00	0.00	0.00
5,200.0	13.37	301.16	5,102.3	449.3	-743.2	-360.5	0.00	0.00	0.00
5,236.4	13.37	301.16	5,137.7	453.7	-750.4	-364.0	0.00	0.00	0.00
Start Drop -2.00									
5,300.0	12.09	301.16	5,199.7	460.9	-762.4	-369.8	2.00	-2.00	0.00
5,400.0	10.09	301.16	5,297.9	470.9	-778.8	-377.8	2.00	-2.00	0.00
5,500.0	8.09	301.16	5,396.6	479.0	-792.4	-384.4	2.00	-2.00	0.00
5,600.0	6.09	301.16	5,495.8	485.4	-802.9	-389.5	2.00	-2.00	0.00
5,700.0	4.09	301.16	5,595.4	490.0	-810.5	-393.2	2.00	-2.00	0.00
5,800.0	2.09	301.16	5,695.3	492.8	-815.2	-395.4	2.00	-2.00	0.00
5,900.0	0.09	301.16	5,795.3	493.8	-816.8	-396.2	2.00	-2.00	0.00
5,904.7	0.00	0.00	5,800.0	493.8	-816.8	-396.2	2.00	-2.00	0.00
6,000.0	0.00	0.00	5,895.3	493.8	-816.8	-396.2	0.00	0.00	0.00
6,067.8	0.00	0.00	5,963.1	493.8	-816.8	-396.2	0.00	0.00	0.00
Start Build 7.50									
6,100.0	2.41	180.03	5,995.3	493.1	-816.8	-395.6	7.50	7.50	0.00
6,200.0	9.91	180.03	6,094.6	482.4	-816.8	-384.9	7.50	7.50	0.00
6,300.0	17.41	180.03	6,191.7	458.8	-816.8	-361.5	7.50	7.50	0.00
6,400.0	24.91	180.03	6,284.9	422.7	-816.8	-325.6	7.50	7.50	0.00
6,500.0	32.41	180.03	6,372.6	374.8	-816.9	-278.0	7.50	7.50	0.00
6,551.4	36.27	180.03	6,415.0	345.8	-816.9	-249.2	7.50	7.50	0.00
Sharon Springs									
6,600.0	39.91	180.03	6,453.3	315.8	-816.9	-219.4	7.50	7.50	0.00
6,700.0	47.41	180.03	6,525.5	246.8	-816.9	-150.9	7.50	7.50	0.00
6,753.0	51.39	180.03	6,560.0	206.6	-817.0	-110.9	7.50	7.50	0.00
Niobrara A									
6,800.0	54.91	180.03	6,588.2	169.0	-817.0	-73.6	7.50	7.50	0.00
6,900.0	62.41	180.03	6,640.2	83.6	-817.0	11.2	7.50	7.50	0.00
6,921.8	64.05	180.03	6,650.0	64.1	-817.0	30.6	7.50	7.50	0.00
Niobrara B									
7,000.0	69.91	180.03	6,680.6	-7.8	-817.1	102.0	7.50	7.50	0.00
7,100.0	77.41	180.03	6,708.7	-103.7	-817.1	197.3	7.50	7.50	0.00
7,200.0	84.91	180.03	6,724.0	-202.4	-817.2	295.4	7.50	7.50	0.00
7,273.4	90.42	180.03	6,727.0	-275.7	-817.2	368.2	7.50	7.50	0.00
Start DLS 0.50 TFO 70.25									
7,274.4	90.42	180.03	6,727.0	-276.7	-817.2	369.2	0.52	0.24	0.46
Start 6792.8 hold at 7274.4 MD									
7,300.0	90.42	180.03	6,726.8	-302.3	-817.2	394.6	0.00	0.00	0.00
7,400.0	90.42	180.03	6,726.1	-402.3	-817.3	494.0	0.00	0.00	0.00
7,500.0	90.42	180.03	6,725.3	-502.3	-817.3	593.3	0.00	0.00	0.00
7,600.0	90.42	180.03	6,724.6	-602.3	-817.4	692.6	0.00	0.00	0.00
7,700.0	90.42	180.03	6,723.9	-702.3	-817.5	792.0	0.00	0.00	0.00
7,800.0	90.42	180.03	6,723.1	-802.3	-817.5	891.3	0.00	0.00	0.00
7,900.0	90.42	180.03	6,722.4	-902.3	-817.6	990.6	0.00	0.00	0.00
8,000.0	90.42	180.03	6,721.7	-1,002.3	-817.6	1,090.0	0.00	0.00	0.00
8,100.0	90.42	180.03	6,720.9	-1,102.3	-817.7	1,189.3	0.00	0.00	0.00

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (1-25-17)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,200.0	90.42	180.03	6,720.2	-1,202.3	-817.8	1,288.7	0.00	0.00	0.00
8,300.0	90.42	180.03	6,719.4	-1,302.3	-817.8	1,388.0	0.00	0.00	0.00
8,400.0	90.42	180.03	6,718.7	-1,402.3	-817.9	1,487.3	0.00	0.00	0.00
8,500.0	90.42	180.03	6,718.0	-1,502.3	-817.9	1,586.7	0.00	0.00	0.00
8,600.0	90.42	180.03	6,717.2	-1,602.3	-818.0	1,686.0	0.00	0.00	0.00
8,700.0	90.42	180.03	6,716.5	-1,702.3	-818.1	1,785.3	0.00	0.00	0.00
8,800.0	90.42	180.03	6,715.8	-1,802.3	-818.1	1,884.7	0.00	0.00	0.00
8,900.0	90.42	180.03	6,715.0	-1,902.3	-818.2	1,984.0	0.00	0.00	0.00
9,000.0	90.42	180.03	6,714.3	-2,002.3	-818.3	2,083.3	0.00	0.00	0.00
9,100.0	90.42	180.03	6,713.6	-2,102.3	-818.3	2,182.7	0.00	0.00	0.00
9,200.0	90.42	180.03	6,712.8	-2,202.3	-818.4	2,282.0	0.00	0.00	0.00
9,300.0	90.42	180.03	6,712.1	-2,302.3	-818.4	2,381.3	0.00	0.00	0.00
9,400.0	90.42	180.03	6,711.3	-2,402.3	-818.5	2,480.7	0.00	0.00	0.00
9,500.0	90.42	180.03	6,710.6	-2,502.3	-818.6	2,580.0	0.00	0.00	0.00
9,600.0	90.42	180.03	6,709.9	-2,602.3	-818.6	2,679.4	0.00	0.00	0.00
9,700.0	90.42	180.03	6,709.1	-2,702.3	-818.7	2,778.7	0.00	0.00	0.00
9,800.0	90.42	180.03	6,708.4	-2,802.3	-818.7	2,878.0	0.00	0.00	0.00
9,900.0	90.42	180.03	6,707.7	-2,902.3	-818.8	2,977.4	0.00	0.00	0.00
10,000.0	90.42	180.03	6,706.9	-3,002.3	-818.9	3,076.7	0.00	0.00	0.00
10,100.0	90.42	180.03	6,706.2	-3,102.3	-818.9	3,176.0	0.00	0.00	0.00
10,200.0	90.42	180.03	6,705.5	-3,202.3	-819.0	3,275.4	0.00	0.00	0.00
10,300.0	90.42	180.03	6,704.7	-3,302.3	-819.0	3,374.7	0.00	0.00	0.00
10,400.0	90.42	180.03	6,704.0	-3,402.2	-819.1	3,474.0	0.00	0.00	0.00
10,500.0	90.42	180.03	6,703.3	-3,502.2	-819.2	3,573.4	0.00	0.00	0.00
10,600.0	90.42	180.03	6,702.5	-3,602.2	-819.2	3,672.7	0.00	0.00	0.00
10,700.0	90.42	180.03	6,701.8	-3,702.2	-819.3	3,772.1	0.00	0.00	0.00
10,800.0	90.42	180.03	6,701.0	-3,802.2	-819.3	3,871.4	0.00	0.00	0.00
10,900.0	90.42	180.03	6,700.3	-3,902.2	-819.4	3,970.7	0.00	0.00	0.00
11,000.0	90.42	180.03	6,699.6	-4,002.2	-819.5	4,070.1	0.00	0.00	0.00
11,100.0	90.42	180.03	6,698.8	-4,102.2	-819.5	4,169.4	0.00	0.00	0.00
11,200.0	90.42	180.03	6,698.1	-4,202.2	-819.6	4,268.7	0.00	0.00	0.00
11,300.0	90.42	180.03	6,697.4	-4,302.2	-819.7	4,368.1	0.00	0.00	0.00
11,400.0	90.42	180.03	6,696.6	-4,402.2	-819.7	4,467.4	0.00	0.00	0.00
11,500.0	90.42	180.03	6,695.9	-4,502.2	-819.8	4,566.7	0.00	0.00	0.00
11,600.0	90.42	180.03	6,695.2	-4,602.2	-819.8	4,666.1	0.00	0.00	0.00
11,700.0	90.42	180.03	6,694.4	-4,702.2	-819.9	4,765.4	0.00	0.00	0.00
11,800.0	90.42	180.03	6,693.7	-4,802.2	-820.0	4,864.8	0.00	0.00	0.00
11,900.0	90.42	180.03	6,693.0	-4,902.2	-820.0	4,964.1	0.00	0.00	0.00
12,000.0	90.42	180.03	6,692.2	-5,002.2	-820.1	5,063.4	0.00	0.00	0.00
12,100.0	90.42	180.03	6,691.5	-5,102.2	-820.1	5,162.8	0.00	0.00	0.00
12,200.0	90.42	180.03	6,690.7	-5,202.2	-820.2	5,262.1	0.00	0.00	0.00
12,300.0	90.42	180.03	6,690.0	-5,302.2	-820.3	5,361.4	0.00	0.00	0.00
12,400.0	90.42	180.03	6,689.3	-5,402.2	-820.3	5,460.8	0.00	0.00	0.00
12,500.0	90.42	180.03	6,688.5	-5,502.2	-820.4	5,560.1	0.00	0.00	0.00
12,600.0	90.42	180.03	6,687.8	-5,602.2	-820.4	5,659.4	0.00	0.00	0.00
12,700.0	90.42	180.03	6,687.1	-5,702.2	-820.5	5,758.8	0.00	0.00	0.00
12,800.0	90.42	180.03	6,686.3	-5,802.2	-820.6	5,858.1	0.00	0.00	0.00
12,900.0	90.42	180.03	6,685.6	-5,902.2	-820.6	5,957.5	0.00	0.00	0.00
13,000.0	90.42	180.03	6,684.9	-6,002.2	-820.7	6,056.8	0.00	0.00	0.00
13,100.0	90.42	180.03	6,684.1	-6,102.2	-820.7	6,156.1	0.00	0.00	0.00
13,200.0	90.42	180.03	6,683.4	-6,202.2	-820.8	6,255.5	0.00	0.00	0.00
13,300.0	90.42	180.03	6,682.6	-6,302.2	-820.9	6,354.8	0.00	0.00	0.00

<b>Database:</b>	US_EDM	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (1-25-17)		

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)
13,400.0	90.42	180.03	6,681.9	-6,402.2	-820.9	6,454.1	0.00	0.00	0.00
13,500.0	90.42	180.03	6,681.2	-6,502.2	-821.0	6,553.5	0.00	0.00	0.00
13,600.0	90.42	180.03	6,680.4	-6,602.2	-821.0	6,652.8	0.00	0.00	0.00
13,700.0	90.42	180.03	6,679.7	-6,702.2	-821.1	6,752.1	0.00	0.00	0.00
13,800.0	90.42	180.03	6,679.0	-6,802.2	-821.2	6,851.5	0.00	0.00	0.00
13,900.0	90.42	180.03	6,678.2	-6,902.2	-821.2	6,950.8	0.00	0.00	0.00
14,000.0	90.42	180.03	6,677.5	-7,002.2	-821.3	7,050.1	0.00	0.00	0.00
14,067.2	90.42	180.03	6,677.0	-7,069.3	-821.3	7,116.9	0.00	0.00	0.00
TD at 14067.2									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL 557'FNL & 1035'FE - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,381,166.56	3,259,659.49	40.375958	-104.567998
BHL 2340'FNL & 1902'F - plan hits target center - Point	0.00	0.00	6,677.0	-7,069.4	-821.3	1,374,089.20	3,258,912.53	40.356553	-104.570945
LPL 819'FNL & 1854'FEI - plan hits target center - Point	0.00	0.00	6,727.0	-275.7	-817.2	1,380,882.22	3,258,845.26	40.375201	-104.570931

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,583.9	3,530.0	Parkman Sandstone		0.00	
4,272.6	4,200.0	Sussex Sandstone		0.00	
6,551.4	6,415.0	Sharon Springs		0.00	
6,753.0	6,560.0	Niobrara A		0.00	
6,921.8	6,650.0	Niobrara B		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP - Start Build 1.50
5,236.4	5,137.7	453.7	-750.4	Start Drop -2.00
6,067.8	5,963.1	493.8	-816.8	Start Build 7.50
7,273.4	6,727.0	-275.7	-817.2	Start DLS 0.50 TFO 70.25
7,274.4	6,727.0	-276.7	-817.2	Start 6792.8 hold at 7274.4 MD
14,067.2	6,677.0	-7,069.3	-821.3	TD at 14067.2



# **PETROLEUM DEVELOPMENT CORP DJ Basin**

**SEC.29-T5N-R64W**

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

**Ottenhoff 29R-243**

**Wellbore #1**

**Plan #2 (1-25-17)**

## **Anticollision Report**

**30 January, 2017**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2 (1-25-17)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 800.0 ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.45 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	1/30/2017		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	14,067.2	Plan #2 (1-25-17) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
Bell Pad SEC.29-T5N-R64W						
Bell B29-22D - Bell B29-22D - Bell B29-22D	9,147.3	6,774.0	579.9	506.1	7.856	CC, ES
Bell B29-22D - Bell B29-22D - Bell B29-22D	9,200.0	6,773.9	582.3	507.3	7.767	SF
Bell B29-24D - Bell B29-24D - Bell B29-24D	10,602.8	7,030.2	601.2	478.1	4.885	CC, ES
Bell B29-24D - Bell B29-24D - Bell B29-24D	10,700.0	7,030.1	609.0	483.7	4.860	SF
Existing Wells Sec.29-T5N-R64W						
Blake #B 29-10X (Exist.) - Wellbore #1 - Wellbore #1	9,645.3	6,712.5	215.7	-16.4	0.929	Level 1, CC, ES, SF
Blake #B29-10 (D&A) - Wellbore #1 - Wellbore #1	9,796.4	6,711.4	141.8	-93.7	0.602	Level 1, CC
Blake #B29-10 (D&A) - Wellbore #1 - Wellbore #1	9,800.0	6,711.4	141.8	-93.7	0.602	Level 1, ES, SF
Blake #B29-15 (Exist.) - Wellbore #1 - Wellbore #1	11,069.7	6,717.1	135.5	-129.2	0.512	Level 1, CC, ES, SF
Carlson 29-1 (Exist.) - Wellbore #1 - Wellbore #1	8,546.4	6,717.3	44.1	-15.3	0.743	Level 1, CC, ES, SF
DIC Cross #31-32 (P&A) - Wellbore #1 - Wellbore #1	12,406.7	6,715.2	47.2	-248.4	0.160	Level 1, CC, ES, SF
Ottenhoff #29-1 (Exist.) - Wellbore #1 - Wellbore #1	7,127.1	6,712.0	70.6	34.1	1.934	CC, ES, SF
Ottenhoff 41-6B (Exist.) - Wellbore #1 - Wellbore #1	633.6	621.6	399.6	396.9	149.667	CC
Ottenhoff 41-6B (Exist.) - Wellbore #1 - Wellbore #1	700.0	686.1	399.7	396.8	135.368	ES
Ottenhoff 41-6B (Exist.) - Wellbore #1 - Wellbore #1	6,350.0	6,337.2	560.2	518.9	13.583	SF
Pearlman #32-13 (Exist.) - Wellbore #1 - Wellbore #1	13,515.3	6,715.3	183.4	9.7	1.056	Level 2, CC, ES, SF
Existing Wells Sec.29-T5N-R64W (GRID)						
Blake B 29-23 (Exist.) - Wellbore #1 - Wellbore #1	10,169.8	6,715.5	71.1	-23.7	0.750	Level 1, CC, ES, SF

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<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 #2 (1-25-17)	200.0	200.0	45.1	44.3	54.651	CC, ES
Ottenhoff 29M-203 - Wellbore #1 - Plan #2 (1-25-17)	14,067.2	14,194.7	700.1	360.7	2.063	SF
Ottenhoff 29M-323 - Wellbore #1 - Plan #2 (1-25-17)	766.3	767.3	15.0	11.1	3.813	CC
Ottenhoff 29M-323 - Wellbore #1 - Plan #2 (1-25-17)	14,067.2	14,185.9	267.0	-57.9	0.822	Level 1, ES, SF
Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17)	400.0	400.0	30.1	28.2	15.614	CC, ES
Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17)	14,067.2	14,289.4	517.3	201.3	1.637	SF
Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17)	1,000.0	1,000.0	15.0	9.8	2.876	CC
Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17)	14,067.2	13,938.9	245.5	-84.1	0.745	Level 1, ES, SF
Ottenhoff 29R-203 - Wellbore #1 - Plan #2 (1-25-17)	1,000.0	1,000.0	44.9	39.6	8.575	CC, ES
Ottenhoff 29R-203 - Wellbore #1 - Plan #2 (1-25-17)	14,067.2	13,986.6	707.0	367.5	2.083	SF
Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17)	1,000.0	1,000.0	30.1	24.9	5.752	CC, ES
Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17)	14,067.2	14,074.3	475.8	139.6	1.415	Level 3, SF
Ottenhoff 29R-323 - Wellbore #1 - Plan #2 (1-25-17)	800.0	800.0	75.0	70.8	18.148	CC, ES
Ottenhoff 29R-323 - Wellbore #1 - Plan #2 (1-25-17)	1,100.0	1,096.9	81.7	75.9	14.170	SF
Ottenhoff 29R-423 - Wellbore #1 - Plan #2 (1-25-17)	1,000.0	999.0	59.9	54.7	11.457	CC, ES
Ottenhoff 29R-423 - Wellbore #1 - Plan #2 (1-25-17)	1,200.0	1,198.9	64.5	58.1	10.220	SF
Ottenhoff 29U-243 - Wellbore #1 - Plan #2 (1-25-17)	400.0	400.0	90.0	88.1	46.694	CC, ES
Ottenhoff 29U-243 - Wellbore #1 - Plan #2 (1-25-17)	1,000.0	986.0	125.6	120.3	23.462	SF
Ottenhoff 29U-343 - Wellbore #1 - Plan #2 (1-25-17)	200.0	199.0	105.0	104.2	127.597	CC, ES
Ottenhoff 29U-343 - Wellbore #1 - Plan #2 (1-25-17)	1,000.0	971.4	176.0	170.3	31.045	SF

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 559- Bell Pad SEC.29-T5N-R64W - Bell B29-22D - Bell B29-22D - Bell B29-22D													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore	Centre	Between	Between	Minimum	Separation		
Depth	Depth	Depth	Depth			Toolface	+N/-S	+E/-W	Centres	Ellipses	Separation	Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)			
8,600.0	6,717.2	6,775.4	6,712.1	46.7	21.2	-88.71	-2,149.8	-238.6	797.4	735.4	62.01	12.858		
8,700.0	6,716.5	6,775.2	6,711.9	48.8	21.2	-88.68	-2,149.8	-238.6	732.4	668.2	64.13	11.420		
8,800.0	6,715.8	6,774.9	6,711.6	50.8	21.2	-88.65	-2,149.8	-238.6	675.9	609.7	66.27	10.201		
8,900.0	6,715.0	6,774.7	6,711.3	52.9	21.2	-88.63	-2,149.8	-238.6	630.4	562.0	68.42	9.214		
9,000.0	6,714.3	6,774.4	6,711.1	55.1	21.2	-88.60	-2,149.8	-238.6	598.3	527.7	70.59	8.476		
9,100.0	6,713.6	6,774.1	6,710.8	57.2	21.2	-88.58	-2,149.8	-238.6	581.9	509.1	72.78	7.995		
9,147.3	6,713.2	6,774.0	6,710.7	58.2	21.2	-88.56	-2,149.8	-238.6	579.9	506.1	73.82	7.856	CC, ES	
9,200.0	6,712.8	6,773.9	6,710.5	59.3	21.2	-88.55	-2,149.8	-238.6	582.3	507.3	74.98	7.767	SF	
9,300.0	6,712.1	6,773.6	6,710.3	61.5	21.2	-88.52	-2,149.8	-238.6	599.7	522.5	77.19	7.769		
9,400.0	6,711.3	6,773.3	6,710.0	63.7	21.2	-88.50	-2,149.8	-238.6	632.6	553.2	79.41	7.966		
9,500.0	6,710.6	6,773.1	6,709.8	65.9	21.2	-88.47	-2,149.8	-238.6	678.8	597.1	81.64	8.314		
9,600.0	6,709.9	6,772.8	6,709.5	68.1	21.2	-88.45	-2,149.8	-238.6	735.7	651.9	83.88	8.772		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 685- Bell Pad SEC.29-T5N-R64W - Bell B29-24D - Bell B29-24D - Bell B29-24D													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,100.0	6,706.2	7,030.4	6,724.1	79.2	35.7	90.92	-3,604.7	-1,420.4	783.7	672.1	111.59	7.023		
10,200.0	6,705.5	7,030.4	6,724.1	81.4	35.7	90.91	-3,604.7	-1,420.4	723.6	609.8	113.87	6.355		
10,300.0	6,704.7	7,030.3	6,724.0	83.7	35.7	90.91	-3,604.7	-1,420.4	673.1	557.0	116.15	5.795		
10,400.0	6,704.0	7,030.3	6,724.0	85.9	35.7	90.90	-3,604.7	-1,420.4	634.5	516.0	118.43	5.357		
10,500.0	6,703.3	7,030.2	6,723.9	88.2	35.7	90.90	-3,604.7	-1,420.4	609.9	489.2	120.72	5.052		
10,600.0	6,702.5	7,030.2	6,723.9	90.5	35.7	90.90	-3,604.7	-1,420.4	601.2	478.2	123.01	4.887		
10,602.8	6,702.5	7,030.2	6,723.9	90.5	35.7	90.90	-3,604.7	-1,420.4	601.2	478.1	123.08	4.885 CC, ES		
10,700.0	6,701.8	7,030.1	6,723.9	92.7	35.7	90.89	-3,604.7	-1,420.4	609.0	483.7	125.31	4.860 SF		
10,800.0	6,701.0	7,030.1	6,723.8	95.0	35.6	90.89	-3,604.7	-1,420.4	632.7	505.1	127.60	4.959		
10,900.0	6,700.3	7,030.0	6,723.8	97.3	35.6	90.88	-3,604.7	-1,420.4	670.7	540.8	129.90	5.163		
11,000.0	6,699.6	7,030.0	6,723.7	99.6	35.6	90.88	-3,604.7	-1,420.4	720.6	588.4	132.21	5.451		
11,100.0	6,698.8	7,029.9	6,723.7	101.8	35.6	90.87	-3,604.7	-1,420.4	780.2	645.7	134.51	5.800		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Blake #B 29-10X (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7072-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,900.0	6,715.0	6,718.0	6,718.0	52.9	164.6	91.46	-2,647.4	-1,034.4	775.8	560.3	215.58	3.599		
9,000.0	6,714.3	6,717.3	6,717.3	55.1	164.6	91.26	-2,647.4	-1,034.4	680.4	462.6	217.76	3.124		
9,100.0	6,713.6	6,716.6	6,716.6	57.2	164.6	91.07	-2,647.4	-1,034.4	586.4	366.4	219.96	2.666		
9,200.0	6,712.8	6,715.8	6,715.8	59.3	164.5	90.87	-2,647.4	-1,034.4	494.8	272.6	222.17	2.227		
9,300.0	6,712.1	6,715.1	6,715.1	61.5	164.5	90.67	-2,647.4	-1,034.4	407.1	182.7	224.39	1.814		
9,400.0	6,711.3	6,714.3	6,714.3	63.7	164.5	90.48	-2,647.4	-1,034.4	326.6	100.0	226.61	1.441	Level 3	
9,500.0	6,710.6	6,713.6	6,713.6	65.9	164.5	90.28	-2,647.4	-1,034.4	260.1	31.2	228.84	1.136	Level 2	
9,600.0	6,709.9	6,712.9	6,712.9	68.1	164.5	90.09	-2,647.4	-1,034.4	220.4	-10.7	231.08	0.954	Level 1	
9,645.3	6,709.5	6,712.5	6,712.5	69.1	164.5	90.00	-2,647.4	-1,034.4	215.7	-16.4	232.10	0.929	Level 1, CC, ES, SF	
9,700.0	6,709.1	6,712.1	6,712.1	70.3	164.4	89.89	-2,647.4	-1,034.4	222.5	-10.8	233.32	0.954	Level 1	
9,800.0	6,708.4	6,711.4	6,711.4	72.5	164.4	89.70	-2,647.4	-1,034.4	265.5	29.9	235.57	1.127	Level 2	
9,900.0	6,707.7	6,710.7	6,710.7	74.7	164.4	89.50	-2,647.4	-1,034.4	333.8	96.0	237.82	1.404	Level 3	
10,000.0	6,706.9	6,709.9	6,709.9	76.9	164.4	89.31	-2,647.4	-1,034.4	415.2	175.1	240.07	1.729		
10,100.0	6,706.2	6,709.2	6,709.2	79.2	164.4	89.11	-2,647.4	-1,034.4	503.3	261.0	242.32	2.077		
10,200.0	6,705.5	6,708.5	6,708.5	81.4	164.4	88.92	-2,647.4	-1,034.4	595.2	350.6	244.58	2.434		
10,300.0	6,704.7	6,707.7	6,707.7	83.7	164.3	88.72	-2,647.4	-1,034.4	689.3	442.5	246.83	2.793		
10,400.0	6,704.0	6,707.0	6,707.0	85.9	164.3	88.52	-2,647.4	-1,034.4	784.9	535.8	249.09	3.151		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Blake #B29-10 (D&A) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7125-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,100.0	6,713.6	6,716.6	6,716.6	57.2	164.6	92.07	-2,798.6	-960.5	710.7	490.9	219.80	3.233		
9,200.0	6,712.8	6,715.8	6,715.8	59.3	164.5	91.77	-2,798.6	-960.5	613.0	391.0	222.03	2.761		
9,300.0	6,712.1	6,715.1	6,715.1	61.5	164.5	91.48	-2,798.6	-960.5	516.3	292.0	224.28	2.302		
9,400.0	6,711.3	6,714.3	6,714.3	63.7	164.5	91.18	-2,798.6	-960.5	421.0	194.5	226.53	1.858		
9,500.0	6,710.6	6,713.6	6,713.6	65.9	164.5	90.88	-2,798.6	-960.5	328.6	99.8	228.78	1.436	Level 3	
9,600.0	6,709.9	6,712.9	6,712.9	68.1	164.5	90.58	-2,798.6	-960.5	242.2	11.2	231.04	1.048	Level 2	
9,700.0	6,709.1	6,712.1	6,712.1	70.3	164.4	90.29	-2,798.6	-960.5	171.5	-61.8	233.30	0.735	Level 1	
9,796.4	6,708.4	6,711.4	6,711.4	72.4	164.4	90.00	-2,798.6	-960.5	141.8	-93.7	235.47	0.602	Level 1, CC	
9,800.0	6,708.4	6,711.4	6,711.4	72.5	164.4	89.99	-2,798.6	-960.5	141.8	-93.7	235.55	0.602	Level 1, ES, SF	
9,900.0	6,707.7	6,710.7	6,710.7	74.7	164.4	89.69	-2,798.6	-960.5	175.6	-62.2	237.81	0.738	Level 1	
10,000.0	6,706.9	6,709.9	6,709.9	76.9	164.4	89.39	-2,798.6	-960.5	248.1	8.0	240.07	1.033	Level 2	
10,100.0	6,706.2	6,709.2	6,709.2	79.2	164.4	89.10	-2,798.6	-960.5	335.0	92.7	242.32	1.383	Level 3	
10,200.0	6,705.5	6,708.5	6,708.5	81.4	164.4	88.80	-2,798.6	-960.5	427.7	183.2	244.58	1.749		
10,300.0	6,704.7	6,707.7	6,707.7	83.7	164.3	88.50	-2,798.6	-960.5	523.1	276.3	246.83	2.119		
10,400.0	6,704.0	6,707.0	6,707.0	85.9	164.3	88.21	-2,798.6	-960.5	620.0	370.9	249.07	2.489		
10,500.0	6,703.3	6,706.3	6,706.3	88.2	164.3	87.91	-2,798.6	-960.5	717.7	466.4	251.32	2.856		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Blake #B29-15 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7092-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,300.0	6,704.7	6,722.7	6,722.7	83.7	164.7	92.39	-4,071.9	-955.0	781.5	534.7	246.83	3.166		
10,400.0	6,704.0	6,722.0	6,722.0	85.9	164.7	92.08	-4,071.9	-955.0	683.3	434.1	249.17	2.742		
10,500.0	6,703.3	6,721.3	6,721.3	88.2	164.7	91.77	-4,071.9	-955.0	585.6	334.1	251.50	2.328		
10,600.0	6,702.5	6,720.5	6,720.5	90.5	164.7	91.46	-4,071.9	-955.0	488.9	235.0	253.82	1.926		
10,700.0	6,701.8	6,719.8	6,719.8	92.7	164.6	91.15	-4,071.9	-955.0	393.7	137.6	256.15	1.537		
10,800.0	6,701.0	6,719.0	6,719.0	95.0	164.6	90.84	-4,071.9	-955.0	301.8	43.4	258.47	1.168	Level 2	
10,900.0	6,700.3	6,718.3	6,718.3	97.3	164.6	90.53	-4,071.9	-955.0	217.2	-43.6	260.78	0.833	Level 1	
11,000.0	6,699.6	6,717.6	6,717.6	99.6	164.6	90.22	-4,071.9	-955.0	152.4	-110.7	263.09	0.579	Level 1	
11,069.7	6,699.1	6,717.1	6,717.1	101.1	164.6	90.00	-4,071.9	-955.0	135.5	-129.2	264.70	0.512	Level 1, CC, ES, SF	
11,100.0	6,698.8	6,716.8	6,716.8	101.8	164.6	89.91	-4,071.9	-955.0	138.8	-126.6	265.40	0.523	Level 1	
11,200.0	6,698.1	6,716.1	6,716.1	104.1	164.5	89.59	-4,071.9	-955.0	188.0	-79.7	267.70	0.702	Level 1	
11,300.0	6,697.4	6,715.4	6,715.4	106.4	164.5	89.28	-4,071.9	-955.0	267.2	-2.8	269.99	0.990	Level 1	
11,400.0	6,696.6	6,714.6	6,714.6	108.7	164.5	88.97	-4,071.9	-955.0	357.0	84.7	272.28	1.311	Level 3	
11,500.0	6,695.9	6,713.9	6,713.9	111.0	164.5	88.66	-4,071.9	-955.0	451.1	176.5	274.56	1.643		
11,600.0	6,695.2	6,713.2	6,713.2	113.3	164.5	88.35	-4,071.9	-955.0	547.3	270.5	276.84	1.977		
11,700.0	6,694.4	6,712.4	6,712.4	115.6	164.5	88.04	-4,071.9	-955.0	644.7	365.6	279.11	2.310		
11,800.0	6,693.7	6,711.7	6,711.7	117.9	164.4	87.73	-4,071.9	-955.0	742.7	461.4	281.37	2.640		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Carlson 29-1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (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		
7,800.0	6,723.1	6,709.3	6,708.1	31.9	16.0	82.91	-1,548.5	-862.5	747.7	702.4	45.30	16.504		
7,900.0	6,722.4	6,710.4	6,709.2	33.5	16.0	84.26	-1,548.6	-862.4	647.9	600.8	47.07	13.765		
8,000.0	6,721.7	6,711.5	6,710.2	35.2	16.0	85.62	-1,548.6	-862.3	548.1	499.3	48.89	11.212		
8,100.0	6,720.9	6,712.5	6,711.3	37.0	16.0	86.99	-1,548.6	-862.3	448.5	397.8	50.76	8.837		
8,200.0	6,720.2	6,713.6	6,712.4	38.9	16.0	88.36	-1,548.6	-862.2	349.2	296.5	52.66	6.631		
8,300.0	6,719.4	6,714.7	6,713.4	40.8	16.0	89.75	-1,548.6	-862.2	250.3	195.7	54.58	4.586		
8,400.0	6,718.7	6,715.8	6,714.5	42.7	16.0	91.13	-1,548.7	-862.1	152.9	96.4	56.51	2.705		
8,500.0	6,718.0	6,716.8	6,715.6	44.7	16.0	92.52	-1,548.7	-862.0	64.0	5.6	58.45	1.095 Level 2		
8,546.4	6,717.6	6,717.3	6,716.1	45.6	16.0	93.16	-1,548.7	-862.0	44.1	-15.3	59.36	0.743 Level 1, CC, ES, SF		
8,600.0	6,717.2	6,717.9	6,716.6	46.7	16.0	93.91	-1,548.7	-862.0	69.4	9.0	60.39	1.149 Level 2		
8,700.0	6,716.5	6,719.0	6,717.7	48.8	16.0	95.29	-1,548.7	-861.9	159.8	97.5	62.32	2.564		
8,800.0	6,715.8	6,720.0	6,718.8	50.8	16.1	96.68	-1,548.7	-861.9	257.4	193.2	64.23	4.008		
8,900.0	6,715.0	6,721.1	6,719.8	52.9	16.1	98.06	-1,548.8	-861.8	356.3	290.2	66.12	5.389		
9,000.0	6,714.3	6,722.2	6,720.9	55.1	16.1	99.44	-1,548.8	-861.7	455.7	387.7	67.98	6.704		
9,100.0	6,713.6	6,723.2	6,722.0	57.2	16.1	100.80	-1,548.8	-861.7	555.3	485.5	69.81	7.954		
9,200.0	6,712.8	6,724.3	6,723.0	59.3	16.1	102.16	-1,548.8	-861.6	655.0	583.4	71.61	9.147		
9,300.0	6,712.1	6,725.4	6,724.1	61.5	16.1	103.51	-1,548.8	-861.6	754.8	681.5	73.38	10.287		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - DIC Cross #31-32 (P&A) - Wellbore #1 - Wellbore #1													Offset Site Error:		0.0 ft
Survey Program: 7025-UNKNOWN													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
11,700.0	6,694.4	6,720.4	6,720.4	115.6	164.7	96.29	-5,408.9	-867.5	708.3	430.9	277.42	2.553			
11,800.0	6,693.7	6,719.7	6,719.7	117.9	164.6	95.40	-5,408.9	-867.5	608.5	328.4	280.17	2.172			
11,900.0	6,693.0	6,719.0	6,719.0	120.2	164.6	94.52	-5,408.9	-867.5	508.9	226.0	282.87	1.799			
12,000.0	6,692.2	6,718.2	6,718.2	122.5	164.6	93.63	-5,408.9	-867.5	409.4	123.9	285.50	1.434	Level 3		
12,100.0	6,691.5	6,717.5	6,717.5	124.8	164.6	92.74	-5,408.9	-867.5	310.3	22.2	288.08	1.077	Level 2		
12,200.0	6,690.7	6,716.7	6,716.7	127.1	164.6	91.85	-5,408.9	-867.5	212.0	-78.6	290.60	0.730	Level 1		
12,300.0	6,690.0	6,716.0	6,716.0	129.4	164.5	90.95	-5,408.9	-867.5	116.7	-176.4	293.06	0.398	Level 1		
12,400.0	6,689.3	6,715.3	6,715.3	131.7	164.5	90.06	-5,408.9	-867.5	47.7	-247.8	295.45	0.161	Level 1		
12,406.7	6,689.2	6,715.2	6,715.2	131.9	164.5	90.00	-5,408.9	-867.5	47.2	-248.4	295.61	0.160	Level 1, CC, ES, SF		
12,500.0	6,688.5	6,714.5	6,714.5	134.0	164.5	89.17	-5,408.9	-867.5	104.5	-193.2	297.78	0.351	Level 1		
12,600.0	6,687.8	6,713.8	6,713.8	136.3	164.5	88.27	-5,408.9	-867.5	199.0	-101.1	300.04	0.663	Level 1		
12,700.0	6,687.1	6,713.1	6,713.1	138.7	164.5	87.38	-5,408.9	-867.5	297.1	-5.2	302.23	0.983	Level 1		
12,800.0	6,686.3	6,712.3	6,712.3	141.0	164.5	86.49	-5,408.9	-867.5	396.1	91.7	304.35	1.301	Level 3		
12,900.0	6,685.6	6,711.6	6,711.6	143.3	164.4	85.60	-5,408.9	-867.5	495.5	189.1	306.40	1.617			
13,000.0	6,684.9	6,710.9	6,710.9	145.6	164.4	84.72	-5,408.9	-867.5	595.1	286.8	308.38	1.930			
13,100.0	6,684.1	6,710.1	6,710.1	147.9	164.4	83.83	-5,408.9	-867.5	694.9	384.6	310.29	2.239			
13,200.0	6,683.4	6,709.4	6,709.4	150.2	164.4	82.95	-5,408.9	-867.5	794.7	482.5	312.13	2.546			



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Ottenhoff #29-1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:		0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	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)	(ft)			
2,400.0	2,378.2	2,376.4	2,376.3	8.2	5.8	-48.55	-109.8	-942.9	786.3	773.1	13.20	59.547			
2,500.0	2,475.4	2,470.9	2,470.8	8.8	6.0	-49.78	-109.6	-942.6	770.6	756.7	13.91	55.390			
2,600.0	2,572.7	2,568.1	2,568.0	9.3	6.2	-51.12	-109.8	-942.4	755.5	741.0	14.58	51.822			
2,700.0	2,670.0	2,667.0	2,666.9	9.9	6.3	-52.54	-110.1	-942.0	740.8	725.5	15.27	48.505			
2,800.0	2,767.3	2,767.1	2,767.0	10.5	6.5	-54.05	-110.4	-941.3	726.1	710.1	16.04	45.281			
2,900.0	2,864.6	2,864.9	2,864.8	11.1	6.8	-55.54	-110.2	-940.5	711.7	694.8	16.86	42.199			
3,000.0	2,961.9	2,959.0	2,958.9	11.7	7.1	-57.01	-109.7	-940.0	697.9	680.1	17.71	39.404			
3,100.0	3,059.2	3,057.0	3,056.9	12.2	7.3	-58.62	-109.6	-939.7	685.0	666.4	18.58	36.863			
3,200.0	3,156.5	3,155.7	3,155.6	12.8	7.6	-60.31	-109.4	-938.9	672.2	652.8	19.48	34.515			
3,300.0	3,253.8	3,254.2	3,254.1	13.4	7.9	-62.03	-109.0	-938.3	660.1	639.7	20.40	32.360			
3,400.0	3,351.1	3,352.9	3,352.8	14.0	8.2	-63.77	-107.9	-937.6	648.1	626.8	21.34	30.376			
3,500.0	3,448.4	3,450.6	3,450.5	14.6	8.5	-65.54	-106.7	-937.0	636.8	614.5	22.29	28.572			
3,600.0	3,545.6	3,549.5	3,549.3	15.2	8.8	-67.38	-105.2	-936.4	625.9	602.7	23.25	26.918			
3,700.0	3,642.9	3,649.0	3,648.8	15.8	9.1	-69.28	-103.4	-935.5	615.4	591.2	24.23	25.397			
3,800.0	3,740.2	3,747.5	3,747.3	16.4	9.4	-71.24	-101.6	-934.3	605.3	580.1	25.22	24.002			
3,900.0	3,837.5	3,844.1	3,843.9	17.0	9.7	-73.25	-100.0	-933.0	595.9	569.7	26.20	22.739			
4,000.0	3,934.8	3,938.4	3,938.1	17.6	10.0	-75.25	-98.5	-931.9	587.5	560.3	27.18	21.613			
4,100.0	4,032.1	4,031.5	4,031.3	18.2	10.3	-77.27	-97.5	-931.4	580.6	552.5	28.15	20.624			
4,200.0	4,129.4	4,127.1	4,126.9	18.8	10.6	-79.43	-97.1	-930.8	575.1	546.0	29.13	19.743			
4,300.0	4,226.7	4,223.5	4,223.3	19.4	10.9	-81.65	-96.7	-930.4	570.6	540.5	30.08	18.966			
4,400.0	4,324.0	4,317.4	4,317.1	20.0	11.0	-83.80	-96.5	-930.4	567.4	536.5	30.94	18.337			
4,500.0	4,421.3	4,411.5	4,411.2	20.6	11.1	-85.98	-96.8	-930.7	565.8	534.1	31.69	17.855			
4,567.0	4,486.4	4,474.9	4,474.6	21.0	11.2	-87.45	-97.2	-931.1	565.4	533.3	32.15	17.587			
4,600.0	4,518.6	4,505.8	4,505.5	21.2	11.2	-88.17	-97.4	-931.4	565.5	533.1	32.38	17.466			
4,700.0	4,615.8	4,595.2	4,594.9	21.8	11.2	-90.32	-99.2	-931.8	567.2	534.1	33.07	17.153			
4,800.0	4,713.1	4,684.9	4,684.6	22.4	11.3	-92.55	-102.5	-932.0	571.2	537.4	33.75	16.923			
4,900.0	4,810.4	4,780.8	4,780.3	23.0	11.4	-94.93	-106.8	-932.2	577.0	542.5	34.43	16.759			
5,000.0	4,907.7	4,880.3	4,879.8	23.6	11.5	-97.37	-111.2	-932.2	583.6	548.5	35.09	16.633			
5,100.0	5,005.0	4,977.8	4,977.2	24.3	11.6	-99.68	-115.0	-932.3	590.9	555.2	35.73	16.538			
5,200.0	5,102.3	5,079.7	5,079.1	24.9	11.8	-102.06	-118.8	-932.0	598.9	562.5	36.37	16.468			
5,236.4	5,137.7	5,117.6	5,116.9	25.1	11.8	-102.94	-119.9	-931.7	601.7	565.1	36.60	16.443			
5,300.0	5,199.7	5,184.5	5,183.8	25.4	11.9	-104.50	-121.6	-931.0	606.5	569.5	36.95	16.415			
5,400.0	5,297.9	5,290.9	5,290.2	25.8	12.1	-106.64	-123.0	-929.6	612.7	575.3	37.43	16.370			
5,500.0	5,396.6	5,387.5	5,386.7	26.2	12.4	-108.28	-123.8	-927.7	617.9	580.0	37.89	16.309			
5,600.0	5,495.8	5,487.0	5,486.2	26.5	12.6	-109.75	-125.1	-924.6	622.6	584.3	38.31	16.251			
5,700.0	5,595.4	5,585.6	5,584.7	26.7	12.9	-110.94	-126.5	-920.8	626.3	587.6	38.70	16.184			
5,800.0	5,695.3	5,681.2	5,680.3	26.9	13.1	-111.76	-128.1	-917.5	629.4	590.3	39.06	16.114			
5,904.7	5,800.0	5,786.1	5,785.1	27.1	13.4	-171.08	-130.1	-914.7	631.6	592.2	39.41	16.027			
6,000.0	5,895.3	5,884.3	5,883.2	27.2	13.6	-171.30	-131.7	-912.5	632.8	593.0	39.77	15.912			
6,067.8	5,963.1	5,956.8	5,955.7	27.3	13.8	-171.43	-132.3	-911.1	633.2	593.2	40.06	15.807			
6,100.0	5,995.3	5,991.5	5,990.4	27.4	13.9	8.49	-132.5	-910.4	632.5	592.4	40.12	15.765			
6,150.0	6,045.1	6,042.8	6,041.7	27.4	14.0	8.47	-132.5	-909.2	628.7	588.6	40.08	15.687			
6,200.0	6,094.6	6,093.1	6,092.0	27.4	14.2	8.52	-132.4	-907.8	621.5	581.7	39.87	15.591			
6,250.0	6,143.5	6,143.3	6,142.2	27.4	14.3	8.64	-132.3	-906.3	611.1	571.6	39.49	15.475			
6,300.0	6,191.7	6,192.6	6,191.5	27.4	14.5	8.87	-132.1	-904.8	597.4	558.5	38.95	15.338			
6,350.0	6,238.9	6,240.6	6,239.4	27.3	14.6	9.20	-131.8	-903.4	580.6	542.4	38.26	15.176			
6,400.0	6,284.9	6,287.1	6,285.9	27.3	14.8	9.65	-131.5	-902.0	560.7	523.3	37.41	14.988			
6,450.0	6,329.5	6,331.7	6,330.4	27.2	14.9	10.23	-131.1	-900.7	537.9	501.5	36.42	14.768			
6,500.0	6,372.6	6,374.4	6,373.1	27.1	15.0	10.99	-130.8	-899.3	512.3	477.0	35.31	14.509			
6,550.0	6,413.9	6,415.0	6,413.7	27.0	15.1	11.96	-130.5	-898.0	484.0	449.9	34.08	14.200			
6,600.0	6,453.3	6,453.3	6,452.0	26.9	15.3	13.21	-130.3	-896.7	453.2	420.4	32.78	13.827			

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Ottenhoff #29-1 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
6,650.0	6,490.5	6,489.6	6,488.3	26.7	15.4	14.83	-130.1	-895.5	420.0	388.6	31.44	13.362		
6,700.0	6,525.5	6,524.3	6,523.0	26.6	15.5	16.98	-130.1	-894.2	384.7	354.6	30.14	12.764		
6,750.0	6,558.1	6,556.8	6,555.4	26.5	15.6	19.89	-130.0	-893.1	347.4	318.4	29.01	11.974		
6,800.0	6,588.2	6,586.8	6,585.4	26.4	15.7	23.88	-129.9	-892.1	308.2	280.0	28.24	10.913		
6,850.0	6,615.6	6,614.1	6,612.7	26.3	15.7	29.44	-129.9	-891.1	267.5	239.4	28.14	9.506		
6,900.0	6,640.2	6,638.5	6,637.1	26.2	15.8	37.22	-129.9	-890.2	225.7	196.6	29.09	7.759		
6,950.0	6,661.9	6,660.1	6,658.7	26.1	15.9	47.87	-129.8	-889.5	183.3	152.1	31.26	5.866		
7,000.0	6,680.6	6,678.7	6,677.3	26.0	15.9	61.26	-129.8	-888.8	141.6	107.5	34.04	4.159		
7,050.0	6,696.2	6,694.3	6,692.8	25.9	16.0	75.48	-129.7	-888.3	103.1	67.0	36.04	2.860		
7,100.0	6,708.7	6,706.6	6,705.2	25.9	16.0	87.40	-129.7	-887.9	75.4	38.9	36.58	2.062		
7,127.1	6,714.1	6,712.0	6,710.6	25.9	16.0	92.04	-129.7	-887.7	70.6	34.1	36.50	1.934	CC, ES, SF	
7,150.0	6,718.0	6,715.8	6,714.4	25.9	16.0	94.82	-129.7	-887.5	74.1	37.7	36.40	2.037		
7,200.0	6,724.0	6,721.8	6,720.3	26.0	16.1	97.11	-129.7	-887.3	101.1	64.6	36.50	2.770		
7,250.0	6,726.8	6,724.5	6,723.0	26.1	16.1	94.15	-129.7	-887.2	141.3	104.0	37.29	3.788		
7,273.4	6,727.0	6,724.6	6,723.2	26.2	16.1	90.91	-129.7	-887.2	162.0	124.2	37.80	4.285		
7,273.4	6,727.0	6,724.6	6,723.2	26.2	16.1	90.91	-129.7	-887.2	162.0	124.2	37.80	4.285		
7,274.4	6,727.0	6,724.6	6,723.2	26.2	16.1	90.90	-129.7	-887.2	162.9	125.1	37.81	4.308		
7,300.0	6,726.8	6,724.4	6,722.9	26.3	16.1	90.71	-129.7	-887.2	186.3	148.3	38.04	4.898		
7,400.0	6,726.1	6,723.5	6,722.0	27.0	16.1	89.95	-129.7	-887.3	281.5	242.3	39.20	7.180		
7,500.0	6,725.3	6,722.6	6,721.1	27.9	16.1	89.20	-129.7	-887.3	379.1	338.6	40.54	9.352		
7,600.0	6,724.6	6,721.6	6,720.2	29.0	16.1	88.45	-129.7	-887.3	477.8	435.8	42.02	11.371		
7,700.0	6,723.9	6,720.7	6,719.2	30.4	16.1	87.70	-129.7	-887.4	576.9	533.3	43.62	13.226		
7,800.0	6,723.1	6,719.8	6,718.3	31.9	16.1	86.95	-129.7	-887.4	676.2	630.9	45.31	14.924		
7,900.0	6,722.4	6,718.9	6,717.4	33.5	16.1	86.20	-129.7	-887.4	775.8	728.7	47.08	16.476		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<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	97.20	-50.3	397.9	401.2						
100.0	100.0	88.3	88.3	0.1	0.1	97.20	-50.3	397.8	401.0	400.7	0.28	1,424.471			
200.0	200.0	188.7	188.7	0.4	0.3	97.21	-50.3	397.7	400.9	400.1	0.72	556.747			
300.0	300.0	289.1	289.1	0.7	0.5	97.23	-50.4	397.5	400.6	399.5	1.16	345.821			
400.0	400.0	389.5	389.5	1.0	0.6	97.26	-50.6	397.1	400.3	398.7	1.60	250.666			
500.0	500.0	489.8	489.8	1.2	0.8	97.29	-50.7	396.7	399.9	397.9	2.04	196.400			
600.0	600.0	588.5	588.5	1.5	1.0	97.26	-50.5	396.4	399.6	397.1	2.51	159.168			
633.6	633.6	621.6	621.6	1.6	1.1	97.22	-50.2	396.4	399.6	396.9	2.67	149.667	CC		
700.0	700.0	686.1	686.0	1.8	1.2	97.11	-49.4	396.7	399.7	396.8	2.95	135.368	ES		
800.0	800.0	782.2	782.2	2.1	1.3	96.91	-48.2	397.8	400.7	397.4	3.35	119.548			
900.0	900.0	880.3	880.2	2.3	1.5	96.64	-46.5	399.7	402.4	398.6	3.80	105.784			
1,000.0	1,000.0	979.0	978.9	2.6	1.7	96.22	-43.8	402.1	404.5	400.3	4.28	94.439			
1,100.0	1,100.0	1,078.5	1,078.3	2.9	1.9	154.53	-39.9	404.8	408.0	403.2	4.81	84.819			
1,200.0	1,199.9	1,179.7	1,179.3	3.1	2.2	154.00	-34.9	407.6	413.9	408.5	5.35	77.301			
1,300.0	1,299.7	1,281.1	1,280.5	3.4	2.5	153.55	-29.3	409.9	421.6	415.7	5.91	71.300			
1,400.0	1,399.3	1,374.8	1,374.0	3.7	2.8	153.15	-23.2	412.7	432.1	425.7	6.46	66.896			
1,500.0	1,498.6	1,468.3	1,467.1	4.0	3.1	152.74	-16.1	416.8	446.4	439.4	7.01	63.652			
1,600.0	1,597.5	1,571.6	1,569.9	4.4	3.4	152.35	-7.5	421.4	463.0	455.4	7.60	60.885			
1,700.0	1,696.1	1,677.8	1,675.6	4.7	3.8	152.03	2.4	424.9	480.7	472.5	8.22	58.513			
1,800.0	1,794.2	1,792.8	1,789.8	5.1	4.1	151.54	15.9	425.8	498.0	489.2	8.87	56.159			
1,891.1	1,883.1	1,895.4	1,891.2	5.5	4.5	150.88	31.7	423.7	513.2	503.7	9.47	54.187			
1,900.0	1,891.7	1,905.3	1,900.9	5.6	4.5	150.83	33.2	423.4	514.6	505.1	9.53	53.988			
2,000.0	1,989.0	2,024.5	2,018.4	6.1	4.9	150.23	52.4	417.2	529.1	518.9	10.26	51.570			
2,100.0	2,086.3	2,143.9	2,135.2	6.6	5.3	149.37	74.4	406.1	539.4	528.4	11.01	49.001			
2,200.0	2,183.6	2,247.2	2,236.2	7.1	5.6	148.73	92.8	394.4	547.9	536.1	11.72	46.756			
2,300.0	2,280.9	2,350.9	2,337.4	7.7	5.9	148.09	111.4	381.9	555.7	543.2	12.44	44.658			
2,400.0	2,378.2	2,459.8	2,443.8	8.2	6.3	147.58	129.6	367.6	562.5	549.3	13.19	42.644			
2,500.0	2,475.4	2,577.0	2,558.2	8.8	6.7	147.16	147.8	349.5	566.9	553.0	13.96	40.599			
2,600.0	2,572.7	2,699.1	2,676.7	9.3	7.1	146.81	165.9	326.3	567.8	553.0	14.75	38.487			
2,700.0	2,670.0	2,808.2	2,781.9	9.9	7.4	146.47	182.2	302.2	565.4	549.9	15.51	36.463			
2,800.0	2,767.3	2,900.9	2,871.4	10.5	7.7	146.28	194.9	282.2	563.6	547.4	16.21	34.773			
2,900.0	2,864.6	3,008.0	2,975.1	11.1	8.1	146.18	208.6	258.6	561.4	544.4	16.96	33.109			
3,000.0	2,961.9	3,104.6	3,068.4	11.7	8.4	146.06	221.2	237.0	558.8	541.1	17.68	31.610			
3,100.0	3,059.2	3,193.6	3,154.7	12.2	8.7	146.00	232.4	218.4	557.6	539.2	18.38	30.338			
3,104.5	3,063.6	3,197.5	3,158.4	12.3	8.7	146.00	232.8	217.6	557.6	539.2	18.41	30.287			
3,200.0	3,156.5	3,279.2	3,238.1	12.8	9.0	146.03	242.4	202.4	558.8	539.7	19.07	29.307			
3,300.0	3,253.8	3,365.0	3,322.4	13.4	9.3	146.21	251.1	188.7	562.6	542.8	19.74	28.497			
3,400.0	3,351.1	3,458.1	3,414.3	14.0	9.6	146.53	259.4	175.7	568.3	547.9	20.43	27.824			
3,500.0	3,448.4	3,574.3	3,528.4	14.6	10.0	146.70	271.8	158.2	573.1	551.9	21.21	27.025			
3,600.0	3,545.6	3,688.6	3,640.0	15.2	10.4	146.66	286.0	137.9	575.1	553.1	22.01	26.131			
3,700.0	3,642.9	3,802.7	3,750.8	15.8	10.8	146.56	300.7	114.9	574.8	552.0	22.82	25.183			
3,800.0	3,740.2	3,911.6	3,855.5	16.4	11.3	146.12	317.9	90.6	572.3	548.6	23.67	24.174			
3,900.0	3,837.5	4,005.7	3,945.9	17.0	11.6	145.66	333.5	69.3	569.6	545.1	24.49	23.261			
4,000.0	3,934.8	4,098.4	4,035.2	17.6	12.0	145.30	347.9	49.5	568.1	542.9	25.29	22.469			
4,100.0	4,032.1	4,196.3	4,129.9	18.2	12.4	144.99	362.7	29.5	567.6	541.5	26.10	21.744			
4,179.5	4,109.5	4,273.4	4,204.7	18.7	12.7	144.85	373.3	14.0	567.4	540.7	26.73	21.225			
4,200.0	4,129.4	4,293.3	4,224.0	18.8	12.7	144.85	375.7	10.1	567.4	540.5	26.89	21.101			
4,300.0	4,226.7	4,391.0	4,319.2	19.4	13.1	144.86	387.3	-8.8	567.9	540.2	27.66	20.534			
4,400.0	4,324.0	4,486.3	4,412.0	20.0	13.5	144.78	399.5	-26.7	569.0	540.5	28.43	20.011			
4,500.0	4,421.3	4,585.1	4,508.2	20.6	13.9	144.65	412.7	-45.0	570.3	541.1	29.23	19.510			
4,600.0	4,518.6	4,676.9	4,597.9	21.2	14.2	144.62	424.2	-61.1	572.7	542.7	29.99	19.092			

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<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)				
4,700.0	4,615.8	4,784.5	4,702.9	21.8	14.6	144.56	437.8	-80.2	574.7	543.9	30.82	18.651			
4,800.0	4,713.1	4,879.1	4,795.1	22.4	15.0	144.49	450.1	-96.9	577.0	545.4	31.60	18.259			
4,900.0	4,810.4	4,983.2	4,896.7	23.0	15.4	144.41	463.5	-115.1	579.3	546.9	32.42	17.871			
5,000.0	4,907.7	5,089.5	5,000.2	23.6	15.8	144.28	477.7	-135.0	580.5	547.2	33.26	17.455			
5,100.0	5,005.0	5,186.1	5,094.2	24.3	16.1	144.19	490.2	-153.4	581.4	547.3	34.05	17.072			
5,200.0	5,102.3	5,278.5	5,184.5	24.9	16.5	144.24	500.9	-169.7	583.4	548.6	34.80	16.763			
5,236.4	5,137.7	5,312.7	5,218.1	25.1	16.6	144.30	504.5	-175.5	584.5	549.4	35.07	16.666			
5,300.0	5,199.7	5,371.6	5,275.9	25.4	16.8	144.44	510.1	-185.1	586.1	550.6	35.52	16.501			
5,400.0	5,297.9	5,465.8	5,368.7	25.8	17.2	144.61	517.9	-199.3	587.3	551.2	36.15	16.246			
5,500.0	5,396.6	5,563.8	5,465.3	26.2	17.5	144.57	526.1	-213.6	586.3	549.5	36.79	15.937			
5,600.0	5,495.8	5,656.1	5,556.4	26.5	17.8	144.32	534.0	-226.6	582.9	545.5	37.39	15.590			
5,700.0	5,595.4	5,742.7	5,642.1	26.7	18.1	144.00	540.4	-236.9	578.9	540.9	37.93	15.260			
5,800.0	5,695.3	5,831.2	5,730.0	26.9	18.4	143.64	545.5	-245.4	574.1	535.7	38.43	14.939			
5,904.7	5,800.0	5,925.1	5,823.5	27.1	18.7	84.35	549.6	-252.5	568.1	529.2	38.91	14.600			
6,000.0	5,895.3	6,012.3	5,910.6	27.2	19.0	84.01	552.5	-257.6	562.9	523.5	39.41	14.281			
6,067.8	5,963.1	6,076.9	5,975.0	27.3	19.2	83.82	554.0	-260.8	559.8	520.0	39.77	14.075			
6,100.0	5,995.3	6,107.2	6,005.3	27.4	19.3	-96.43	554.5	-262.1	558.5	518.6	39.96	13.977			
6,150.0	6,045.1	6,153.8	6,051.9	27.4	19.4	-96.97	555.1	-263.9	557.1	516.9	40.25	13.841			
6,200.0	6,094.6	6,200.2	6,098.2	27.4	19.5	-97.73	555.4	-265.3	556.5	515.9	40.55	13.724			
6,214.4	6,108.7	6,213.4	6,111.5	27.4	19.5	-97.99	555.4	-265.7	556.4	515.8	40.63	13.696			
6,250.0	6,143.5	6,246.0	6,144.1	27.4	19.6	-98.69	555.4	-266.5	556.7	515.9	40.83	13.633			
6,300.0	6,191.7	6,292.0	6,190.1	27.4	19.7	-99.85	555.2	-267.5	557.9	516.8	41.05	13.589			
6,350.0	6,238.9	6,337.2	6,235.3	27.3	19.8	-101.15	554.7	-268.1	560.2	518.9	41.24	13.583 SF			
6,400.0	6,284.9	6,381.5	6,279.6	27.3	19.8	-102.57	554.1	-268.6	563.8	522.4	41.38	13.625			
6,450.0	6,329.5	6,424.6	6,322.7	27.2	19.9	-104.04	553.2	-268.8	569.0	527.6	41.43	13.734			
6,500.0	6,372.6	6,466.3	6,364.3	27.1	19.9	-105.52	552.3	-268.9	576.0	534.6	41.38	13.921			
6,550.0	6,413.9	6,506.5	6,404.5	27.0	19.9	-106.95	551.3	-268.8	585.1	543.8	41.24	14.186			
6,600.0	6,453.3	6,545.1	6,443.1	26.9	19.9	-108.29	550.2	-268.5	596.4	555.4	41.03	14.536			
6,650.0	6,490.5	6,582.5	6,480.5	26.7	19.9	-109.51	549.1	-268.1	610.1	569.4	40.73	14.979			
6,700.0	6,525.5	6,618.5	6,516.4	26.6	19.9	-110.57	547.9	-267.7	626.4	586.0	40.38	15.512			
6,750.0	6,558.1	6,652.2	6,550.1	26.5	19.9	-111.38	546.8	-267.2	645.3	605.3	40.00	16.132			
6,800.0	6,588.2	6,683.6	6,581.5	26.4	19.9	-111.90	545.7	-266.8	666.8	627.2	39.62	16.829			
6,850.0	6,615.6	6,712.6	6,610.5	26.3	19.9	-112.06	544.6	-266.3	691.1	651.8	39.29	17.587			
6,900.0	6,640.2	6,738.6	6,636.4	26.2	19.9	-111.81	543.6	-265.9	717.9	678.9	39.06	18.382			
6,950.0	6,661.9	6,761.8	6,659.7	26.1	19.9	-111.10	542.7	-265.4	747.3	708.4	38.95	19.188			
7,000.0	6,680.6	6,782.3	6,680.1	26.0	19.9	-109.89	541.8	-265.0	779.1	740.1	38.99	19.981			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Pearlman #32-13 (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	
12,800.0	6,686.3	6,713.2	6,712.1	141.0	16.9	-87.52	-6,517.6	-637.8	738.5	581.6	156.90	4.707		
12,900.0	6,685.6	6,713.5	6,712.4	143.3	16.9	-87.61	-6,517.6	-637.7	642.1	482.9	159.24	4.032		
13,000.0	6,684.9	6,713.8	6,712.7	145.6	16.9	-87.69	-6,517.6	-637.7	547.0	385.4	161.58	3.385		
13,100.0	6,684.1	6,714.1	6,713.0	147.9	16.9	-87.78	-6,517.6	-637.7	454.0	290.1	163.92	2.770		
13,200.0	6,683.4	6,714.3	6,713.3	150.2	16.9	-87.87	-6,517.6	-637.7	364.8	198.5	166.26	2.194		
13,300.0	6,682.6	6,714.6	6,713.5	152.6	16.9	-87.96	-6,517.6	-637.7	282.9	114.3	168.61	1.678		
13,400.0	6,681.9	6,714.9	6,713.8	154.9	16.9	-88.06	-6,517.6	-637.7	216.7	45.7	170.95	1.267	Level 3	
13,500.0	6,681.2	6,715.2	6,714.1	157.2	16.9	-88.15	-6,517.6	-637.7	184.0	10.8	173.30	1.062	Level 2	
13,515.3	6,681.1	6,715.3	6,714.2	157.6	16.9	-88.17	-6,517.6	-637.7	183.4	9.7	173.66	1.056	Level 2, CC, ES, SF	
13,600.0	6,680.4	6,715.5	6,714.4	159.5	16.9	-88.25	-6,517.6	-637.7	202.0	26.4	175.64	1.150	Level 2	
13,700.0	6,679.7	6,715.8	6,714.8	161.9	16.9	-88.34	-6,517.6	-637.7	260.3	82.3	177.99	1.462	Level 3	
13,800.0	6,679.0	6,716.2	6,715.1	164.2	16.9	-88.44	-6,517.6	-637.7	338.6	158.3	180.33	1.878		
13,900.0	6,678.2	6,716.5	6,715.4	166.5	16.9	-88.54	-6,517.6	-637.6	426.1	243.5	182.68	2.333		
14,000.0	6,677.5	6,716.8	6,715.7	168.8	16.9	-88.64	-6,517.6	-637.6	518.2	333.2	185.03	2.801		
14,067.2	6,677.0	6,717.0	6,715.9	170.4	16.9	-88.71	-6,517.6	-637.6	581.6	395.0	186.60	3.117		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells Sec.29-T5N-R64W (GRID) - Blake B 29-23 (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)				
9,400.0	6,711.3	6,682.8	6,680.3	63.7	15.5	-62.31	-3,170.5	-749.7	772.4	703.9	68.57	11.266			
9,500.0	6,710.6	6,687.1	6,684.6	65.9	15.5	-65.20	-3,170.7	-749.5	673.0	600.8	72.24	9.317			
9,600.0	6,709.9	6,691.3	6,688.8	68.1	15.5	-68.20	-3,170.9	-749.2	573.8	497.9	75.91	7.559			
9,700.0	6,709.1	6,695.5	6,693.0	70.3	15.5	-71.32	-3,171.1	-749.0	474.8	395.2	79.54	5.969			
9,800.0	6,708.4	6,699.8	6,697.3	72.5	15.5	-74.53	-3,171.3	-748.8	376.3	293.2	83.09	4.529			
9,900.0	6,707.7	6,704.0	6,701.5	74.7	15.5	-77.83	-3,171.6	-748.6	278.8	192.3	86.51	3.223			
10,000.0	6,706.9	6,708.3	6,705.7	76.9	15.5	-81.19	-3,171.8	-748.3	184.0	94.2	89.76	2.050			
10,100.0	6,706.2	6,712.5	6,710.0	79.2	15.6	-84.58	-3,172.0	-748.1	99.6	6.8	92.79	1.074	Level 2		
10,169.8	6,705.7	6,715.5	6,712.9	80.7	15.6	-86.97	-3,172.1	-748.0	71.1	-23.7	94.77	0.750	Level 1, CC, ES, SF		
10,200.0	6,705.5	6,716.8	6,714.2	81.4	15.6	-88.00	-3,172.2	-747.9	77.2	-18.4	95.58	0.808	Level 1		
10,300.0	6,704.7	6,721.0	6,718.4	83.7	15.6	-91.41	-3,172.4	-747.7	148.2	50.1	98.08	1.511			
10,400.0	6,704.0	6,725.2	6,722.7	85.9	15.6	-94.78	-3,172.6	-747.4	240.7	140.4	100.29	2.400			
10,500.0	6,703.3	6,729.5	6,726.9	88.2	15.6	-98.10	-3,172.8	-747.2	337.4	235.2	102.20	3.302			
10,600.0	6,702.5	6,733.7	6,731.1	90.5	15.6	-101.35	-3,173.0	-747.0	435.6	331.8	103.80	4.197			
10,700.0	6,701.8	6,738.0	6,735.4	92.7	15.6	-104.51	-3,173.2	-746.8	534.4	429.3	105.11	5.085			
10,800.0	6,701.0	6,742.2	6,739.6	95.0	15.6	-107.56	-3,173.5	-746.5	633.6	527.4	106.14	5.969			
10,900.0	6,700.3	6,746.5	6,743.8	97.3	15.6	-110.49	-3,173.7	-746.3	732.9	626.0	106.93	6.854			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #2 (1-25-17)													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	-89.08	0.7	-45.1	45.1					
100.0	100.0	100.0	100.0	0.1	0.1	-89.08	0.7	-45.1	45.1	44.9	0.28	163.953		
200.0	200.0	200.0	200.0	0.4	0.4	-89.08	0.7	-45.1	45.1	44.3	0.83	54.651	CC, ES	
300.0	300.0	298.9	298.9	0.7	0.7	-88.61	1.1	-46.4	46.4	45.0	1.37	33.963		
400.0	400.0	397.6	397.5	1.0	0.9	-87.35	2.3	-50.0	50.1	48.2	1.91	26.224		
500.0	500.0	496.1	495.8	1.2	1.2	-85.62	4.3	-56.0	56.4	53.9	2.47	22.821		
600.0	600.0	594.1	593.4	1.5	1.5	-83.76	7.0	-64.4	65.2	62.1	3.05	21.397		
700.0	700.0	691.7	690.3	1.8	1.9	-82.01	10.6	-75.2	76.5	72.9	3.64	21.009		
800.0	800.0	788.6	786.3	2.1	2.3	-80.47	14.8	-88.2	90.4	86.2	4.27	21.200		
900.0	900.0	884.8	881.1	2.3	2.7	-79.17	19.8	-103.3	106.9	102.0	4.92	21.724		
1,000.0	1,000.0	980.0	974.6	2.6	3.1	-78.10	25.4	-120.6	125.8	120.2	5.61	22.437		
1,100.0	1,100.0	1,074.6	1,067.0	2.9	3.6	-18.44	31.7	-139.9	146.0	140.1	5.83	25.033		
1,200.0	1,199.9	1,168.7	1,158.4	3.1	4.2	-18.00	38.7	-161.3	166.1	159.7	6.39	25.985		
1,300.0	1,299.7	1,262.4	1,248.7	3.4	4.8	-17.82	46.4	-184.7	186.3	179.3	6.97	26.736		
1,400.0	1,399.3	1,355.6	1,338.0	3.7	5.4	-17.82	54.7	-210.0	206.3	198.8	7.55	27.331		
1,500.0	1,498.6	1,448.3	1,426.2	4.0	6.1	-17.95	63.6	-237.3	226.3	218.2	8.15	27.781		
1,600.0	1,597.5	1,542.8	1,515.4	4.4	6.9	-18.18	73.3	-267.0	246.1	237.4	8.76	28.079		
1,700.0	1,696.1	1,641.2	1,608.0	4.7	7.7	-18.56	83.6	-298.4	263.9	254.5	9.41	28.049		
1,800.0	1,794.2	1,739.9	1,701.1	5.1	8.5	-19.07	93.9	-329.9	279.3	269.2	10.07	27.735		
1,891.1	1,883.1	1,830.2	1,786.2	5.5	9.3	-19.63	103.3	-358.6	291.2	280.5	10.69	27.236		
1,900.0	1,891.7	1,839.0	1,794.4	5.6	9.4	-19.70	104.2	-361.5	292.3	281.5	10.76	27.175		
2,000.0	1,989.0	1,938.2	1,887.9	6.1	10.2	-20.41	114.6	-393.1	304.3	292.8	11.48	26.512		
2,100.0	2,086.3	2,037.5	1,981.4	6.6	11.1	-21.06	124.9	-424.7	316.4	304.2	12.22	25.896		
2,200.0	2,183.6	2,136.7	2,074.8	7.1	11.9	-21.66	135.2	-456.3	328.5	315.5	12.97	25.323		
2,300.0	2,280.9	2,235.9	2,168.3	7.7	12.8	-22.22	145.6	-488.0	340.6	326.8	13.74	24.791		
2,400.0	2,378.2	2,335.1	2,261.7	8.2	13.7	-22.75	155.9	-519.6	352.7	338.2	14.52	24.296		
2,500.0	2,475.4	2,434.3	2,355.2	8.8	14.5	-23.23	166.3	-551.2	364.9	349.6	15.31	23.835		
2,600.0	2,572.7	2,533.5	2,448.7	9.3	15.4	-23.69	176.6	-582.9	377.1	361.0	16.11	23.406		
2,700.0	2,670.0	2,632.7	2,542.1	9.9	16.2	-24.12	187.0	-614.5	389.4	372.4	16.92	23.006		
2,800.0	2,767.3	2,731.9	2,635.6	10.5	17.1	-24.52	197.3	-646.1	401.6	383.9	17.74	22.632		
2,900.0	2,864.6	2,831.1	2,729.0	11.1	18.0	-24.90	207.7	-677.8	413.9	395.3	18.57	22.283		
3,000.0	2,961.9	2,930.3	2,822.5	11.7	18.8	-25.25	218.0	-709.4	426.1	406.7	19.41	21.957		
3,100.0	3,059.2	3,029.5	2,916.0	12.2	19.7	-25.59	228.4	-741.0	438.4	418.2	20.25	21.650		
3,200.0	3,156.5	3,128.8	3,009.4	12.8	20.6	-25.91	238.7	-772.6	450.8	429.7	21.10	21.363		
3,300.0	3,253.8	3,228.0	3,102.9	13.4	21.4	-26.21	249.1	-804.3	463.1	441.1	21.95	21.093		
3,400.0	3,351.1	3,327.2	3,196.4	14.0	22.3	-26.49	259.4	-835.9	475.4	452.6	22.81	20.839		
3,500.0	3,448.4	3,426.4	3,289.8	14.6	23.2	-26.76	269.8	-867.5	487.8	464.1	23.68	20.599		
3,600.0	3,545.6	3,525.6	3,383.3	15.2	24.0	-27.02	280.1	-899.2	500.1	475.6	24.55	20.373		
3,700.0	3,642.9	3,624.8	3,476.7	15.8	24.9	-27.27	290.5	-930.8	512.5	487.1	25.42	20.160		
3,800.0	3,740.2	3,724.0	3,570.2	16.4	25.8	-27.50	300.8	-962.4	524.9	498.6	26.30	19.958		
3,900.0	3,837.5	3,823.2	3,663.7	17.0	26.6	-27.72	311.2	-994.0	537.3	510.1	27.18	19.767		
4,000.0	3,934.8	3,922.4	3,757.1	17.6	27.5	-27.93	321.5	-1,025.7	549.7	521.6	28.06	19.586		
4,100.0	4,032.1	4,021.6	3,850.6	18.2	28.4	-28.14	331.9	-1,057.3	562.1	533.1	28.95	19.413		
4,200.0	4,129.4	4,120.8	3,944.0	18.8	29.2	-28.33	342.2	-1,088.9	574.5	544.6	29.84	19.250		
4,300.0	4,226.7	4,220.1	4,037.5	19.4	30.1	-28.52	352.5	-1,120.6	586.9	556.1	30.74	19.094		
4,400.0	4,324.0	4,319.3	4,131.0	20.0	31.0	-28.70	362.9	-1,152.2	599.3	567.7	31.63	18.946		
4,500.0	4,421.3	4,418.5	4,224.4	20.6	31.8	-28.87	373.2	-1,183.8	611.7	579.2	32.53	18.805		
4,600.0	4,518.6	4,517.7	4,317.9	21.2	32.7	-29.03	383.6	-1,215.5	624.1	590.7	33.43	18.670		
4,700.0	4,615.8	4,616.9	4,411.3	21.8	33.6	-29.19	393.9	-1,247.1	636.6	602.2	34.33	18.541		
4,800.0	4,713.1	4,716.1	4,504.8	22.4	34.4	-29.34	404.3	-1,278.7	649.0	613.8	35.24	18.418		
4,900.0	4,810.4	4,815.3	4,598.3	23.0	35.3	-29.49	414.6	-1,310.3	661.5	625.3	36.14	18.300		

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #2 (1-25-17)											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	4,907.7	4,914.5	4,691.7	23.6	36.2	-29.63	425.0	-1,342.0	673.9	636.9	37.05	18.188					
5,100.0	5,005.0	5,028.2	4,799.1	24.3	37.1	-29.80	436.6	-1,377.6	685.8	647.8	38.01	18.043					
5,200.0	5,102.3	5,157.6	4,922.8	24.9	37.8	-30.12	448.4	-1,413.6	694.0	655.0	39.02	17.786					
5,236.4	5,137.7	5,204.8	4,968.3	25.1	38.1	-30.26	452.3	-1,425.4	696.0	656.6	39.40	17.665					
5,300.0	5,199.7	5,287.5	5,048.6	25.4	38.5	-30.56	458.5	-1,444.4	698.6	658.6	39.99	17.468					
5,400.0	5,297.9	5,417.6	5,175.9	25.8	39.1	-30.97	466.8	-1,469.8	701.6	660.8	40.80	17.195					
5,500.0	5,396.6	5,547.9	5,304.5	26.2	39.6	-31.33	473.3	-1,489.7	703.4	661.9	41.50	16.949					
5,600.0	5,495.8	5,678.2	5,433.9	26.5	39.9	-31.63	478.0	-1,504.0	703.8	661.7	42.08	16.725					
5,700.0	5,595.4	5,808.5	5,563.8	26.7	40.2	-31.87	480.8	-1,512.7	702.9	660.3	42.55	16.521					
5,800.0	5,695.3	5,938.6	5,693.9	26.9	40.3	-32.07	481.8	-1,515.7	700.7	657.8	42.89	16.335					
5,904.7	5,800.0	6,044.7	5,800.0	27.1	40.4	-90.98	481.8	-1,515.7	699.0	655.9	43.10	16.218					
6,000.0	5,895.3	6,140.0	5,895.3	27.2	40.5	-90.98	481.8	-1,515.7	699.0	655.6	43.44	16.093					
6,067.8	5,963.1	6,207.8	5,963.1	27.3	40.6	-90.98	481.8	-1,515.7	699.0	655.4	43.69	16.001					
6,100.0	5,995.3	6,239.4	5,994.7	27.4	40.6	88.99	481.2	-1,515.7	699.0	655.3	43.77	15.970					
6,150.0	6,045.1	6,288.6	6,043.8	27.4	40.7	88.99	477.6	-1,515.7	699.0	655.2	43.87	15.936					
6,200.0	6,094.6	6,337.9	6,092.5	27.4	40.7	89.00	470.8	-1,515.7	699.0	655.1	43.89	15.926					
6,250.0	6,143.5	6,387.1	6,140.7	27.4	40.7	89.02	460.9	-1,515.8	699.0	655.2	43.86	15.940					
6,300.0	6,191.7	6,436.3	6,188.2	27.4	40.6	89.04	447.9	-1,515.8	699.0	655.3	43.76	15.974					
6,350.0	6,238.9	6,485.5	6,234.8	27.3	40.6	89.06	431.9	-1,515.8	699.0	655.4	43.62	16.026					
6,400.0	6,284.9	6,534.8	6,280.2	27.3	40.6	89.08	412.9	-1,515.8	699.0	655.6	43.43	16.094					
6,450.0	6,329.5	6,584.1	6,324.4	27.2	40.5	89.11	391.0	-1,515.8	699.0	655.8	43.22	16.175					
6,500.0	6,372.6	6,633.4	6,367.0	27.1	40.4	89.15	366.3	-1,515.8	699.0	656.0	42.98	16.264					
6,550.0	6,413.9	6,682.7	6,408.0	27.0	40.4	89.18	338.9	-1,515.8	699.0	656.3	42.74	16.357					
6,600.0	6,453.3	6,732.1	6,447.2	26.9	40.3	89.22	308.9	-1,515.9	699.0	656.5	42.50	16.450					
6,650.0	6,490.5	6,781.5	6,484.4	26.7	40.2	89.27	276.4	-1,515.9	699.0	656.7	42.27	16.536					
6,700.0	6,525.5	6,830.9	6,519.4	26.6	40.1	89.31	241.5	-1,515.9	699.0	656.9	42.09	16.610					
6,750.0	6,558.1	6,880.4	6,552.1	26.5	40.1	89.36	204.4	-1,515.9	699.0	657.1	41.94	16.665					
6,777.8	6,575.2	6,907.9	6,569.3	26.4	40.0	89.39	182.9	-1,515.9	699.0	657.1	41.89	16.685					
6,800.0	6,588.2	6,929.9	6,582.4	26.4	40.0	89.42	165.2	-1,516.0	699.0	657.2	41.87	16.697					
6,850.0	6,615.6	6,979.4	6,610.1	26.3	39.9	89.47	124.2	-1,516.0	699.0	657.2	41.86	16.699					
6,900.0	6,640.2	7,029.0	6,635.1	26.2	39.8	89.53	81.3	-1,516.0	699.0	657.1	41.94	16.667					
6,950.0	6,661.9	7,078.7	6,657.2	26.1	39.8	89.59	36.9	-1,516.0	699.0	656.9	42.12	16.598					
7,000.0	6,680.6	7,128.4	6,676.5	26.0	39.7	89.65	-8.9	-1,516.1	699.0	656.6	42.39	16.488					
7,050.0	6,696.2	7,178.1	6,692.8	25.9	39.7	89.71	-55.8	-1,516.1	699.0	656.2	42.78	16.339					
7,100.0	6,708.7	7,227.9	6,705.9	25.9	39.7	89.77	-103.8	-1,516.1	699.0	655.8	43.28	16.152					
7,150.0	6,718.0	7,277.7	6,716.0	25.9	39.7	89.84	-152.7	-1,516.2	699.0	655.2	43.89	15.929					
7,200.0	6,724.0	7,327.6	6,722.8	26.0	39.7	89.90	-202.1	-1,516.2	699.0	654.5	44.60	15.675					
7,250.0	6,726.8	7,377.5	6,726.4	26.1	39.7	89.97	-251.9	-1,516.2	699.1	653.6	45.41	15.394					
7,273.4	6,727.0	7,400.9	6,727.0	26.2	39.7	90.00	-275.3	-1,516.3	699.1	653.2	45.82	15.258					
7,273.4	6,727.0	7,401.0	6,727.0	26.2	39.7	90.00	-275.3	-1,516.3	699.1	653.2	45.82	15.258					
7,274.4	6,727.0	7,401.9	6,727.0	26.2	39.7	90.00	-276.3	-1,516.3	699.1	653.2	45.83	15.252					
7,300.0	6,726.8	7,427.5	6,726.9	26.3	39.8	90.01	-301.8	-1,516.3	699.1	652.8	46.27	15.108					
7,400.0	6,726.1	7,527.5	6,726.2	27.0	40.0	90.01	-401.8	-1,516.4	699.1	650.8	48.33	14.466					
7,500.0	6,725.3	7,627.5	6,725.4	27.9	40.4	90.01	-501.8	-1,516.4	699.1	648.3	50.80	13.762					
7,600.0	6,724.6	7,727.5	6,724.7	29.0	40.8	90.01	-601.8	-1,516.5	699.1	645.5	53.57	13.050					
7,700.0	6,723.9	7,827.5	6,724.0	30.4	41.5	90.01	-701.8	-1,516.6	699.1	642.5	56.60	12.352					
7,800.0	6,723.1	7,927.5	6,723.2	31.9	42.2	90.01	-801.8	-1,516.7	699.1	639.3	59.84	11.683					
7,900.0	6,722.4	8,027.5	6,722.5	33.5	43.1	90.01	-901.8	-1,516.7	699.2	635.9	63.27	11.050					
8,000.0	6,721.7	8,127.5	6,721.7	35.2	44.2	90.01	-1,001.8	-1,516.8	699.2	632.3	66.85	10.458					
8,100.0	6,720.9	8,227.5	6,721.0	37.0	45.4	90.01	-1,101.8	-1,516.9	699.2	628.6	70.57	9.908					

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #2 (1-25-17)													Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)		(ft)	(ft)	(ft)			
8,200.0	6,720.2	8,327.5	6,720.3	38.9	46.7	90.01	-1,201.8	-1,517.0		699.2	624.8	74.39	9.399		
8,300.0	6,719.4	8,427.5	6,719.5	40.8	48.1	90.01	-1,301.8	-1,517.0		699.2	620.9	78.31	8.928		
8,400.0	6,718.7	8,527.5	6,718.8	42.7	49.6	90.01	-1,401.8	-1,517.1		699.2	616.9	82.32	8.495		
8,500.0	6,718.0	8,627.5	6,718.1	44.7	51.2	90.01	-1,501.8	-1,517.2		699.2	612.9	86.39	8.094		
8,600.0	6,717.2	8,727.5	6,717.3	46.7	52.9	90.01	-1,601.8	-1,517.3		699.3	608.7	90.52	7.725		
8,700.0	6,716.5	8,827.5	6,716.6	48.8	54.6	90.01	-1,701.8	-1,517.3		699.3	604.6	94.71	7.383		
8,800.0	6,715.8	8,927.5	6,715.8	50.8	56.4	90.01	-1,801.8	-1,517.4		699.3	600.3	98.94	7.068		
8,900.0	6,715.0	9,027.5	6,715.1	52.9	58.3	90.01	-1,901.8	-1,517.5		699.3	596.1	103.22	6.775		
9,000.0	6,714.3	9,127.5	6,714.4	55.1	60.2	90.01	-2,001.8	-1,517.6		699.3	591.8	107.53	6.504		
9,100.0	6,713.6	9,227.5	6,713.6	57.2	62.1	90.01	-2,101.8	-1,517.7		699.3	587.5	111.87	6.251		
9,200.0	6,712.8	9,327.5	6,712.9	59.3	64.0	90.01	-2,201.8	-1,517.7		699.4	583.1	116.24	6.017		
9,300.0	6,712.1	9,427.5	6,712.2	61.5	66.0	90.01	-2,301.7	-1,517.8		699.4	578.7	120.63	5.797		
9,400.0	6,711.3	9,527.5	6,711.4	63.7	68.0	90.01	-2,401.7	-1,517.9		699.4	574.3	125.05	5.593		
9,500.0	6,710.6	9,627.5	6,710.7	65.9	70.1	90.01	-2,501.7	-1,518.0		699.4	569.9	129.49	5.401		
9,600.0	6,709.9	9,727.5	6,710.0	68.1	72.1	90.01	-2,601.7	-1,518.0		699.4	565.5	133.94	5.222		
9,700.0	6,709.1	9,827.5	6,709.2	70.3	74.2	90.01	-2,701.7	-1,518.1		699.4	561.0	138.41	5.053		
9,800.0	6,708.4	9,927.5	6,708.5	72.5	76.3	90.01	-2,801.7	-1,518.2		699.4	556.5	142.90	4.895		
9,900.0	6,707.7	10,027.5	6,707.7	74.7	78.4	90.01	-2,901.7	-1,518.3		699.5	552.1	147.40	4.745		
10,000.0	6,706.9	10,127.5	6,707.0	76.9	80.5	90.01	-3,001.7	-1,518.3		699.5	547.6	151.91	4.604		
10,100.0	6,706.2	10,227.5	6,706.3	79.2	82.7	90.01	-3,101.7	-1,518.4		699.5	543.1	156.43	4.471		
10,200.0	6,705.5	10,327.5	6,705.5	81.4	84.8	90.01	-3,201.7	-1,518.5		699.5	538.5	160.97	4.346		
10,300.0	6,704.7	10,427.5	6,704.8	83.7	87.0	90.01	-3,301.7	-1,518.6		699.5	534.0	165.51	4.226		
10,400.0	6,704.0	10,527.5	6,704.1	85.9	89.2	90.01	-3,401.7	-1,518.6		699.5	529.5	170.06	4.113		
10,500.0	6,703.3	10,627.5	6,703.3	88.2	91.3	90.01	-3,501.7	-1,518.7		699.5	524.9	174.62	4.006		
10,600.0	6,702.5	10,727.5	6,702.6	90.5	93.5	90.01	-3,601.7	-1,518.8		699.6	520.4	179.19	3.904		
10,700.0	6,701.8	10,827.5	6,701.9	92.7	95.7	90.01	-3,701.7	-1,518.9		699.6	515.8	183.76	3.807		
10,800.0	6,701.0	10,927.5	6,701.1	95.0	97.9	90.01	-3,801.7	-1,518.9		699.6	511.3	188.34	3.714		
10,900.0	6,700.3	11,027.5	6,700.4	97.3	100.1	90.01	-3,901.7	-1,519.0		699.6	506.7	192.93	3.626		
11,000.0	6,699.6	11,127.5	6,699.6	99.6	102.3	90.01	-4,001.7	-1,519.1		699.6	502.1	197.52	3.542		
11,100.0	6,698.8	11,227.5	6,698.9	101.8	104.6	90.01	-4,101.7	-1,519.2		699.6	497.5	202.12	3.462		
11,200.0	6,698.1	11,327.5	6,698.2	104.1	106.8	90.01	-4,201.7	-1,519.2		699.7	492.9	206.72	3.385		
11,300.0	6,697.4	11,427.5	6,697.4	106.4	109.0	90.01	-4,301.7	-1,519.3		699.7	488.3	211.32	3.311		
11,400.0	6,696.6	11,527.5	6,696.7	108.7	111.3	90.01	-4,401.7	-1,519.4		699.7	483.8	215.93	3.240		
11,500.0	6,695.9	11,627.5	6,696.0	111.0	113.5	90.01	-4,501.7	-1,519.5		699.7	479.2	220.55	3.173		
11,600.0	6,695.2	11,727.5	6,695.2	113.3	115.8	90.01	-4,601.7	-1,519.5		699.7	474.6	225.17	3.108		
11,700.0	6,694.4	11,827.5	6,694.5	115.6	118.0	90.01	-4,701.7	-1,519.6		699.7	469.9	229.79	3.045		
11,800.0	6,693.7	11,927.5	6,693.8	117.9	120.3	90.01	-4,801.7	-1,519.7		699.7	465.3	234.41	2.985		
11,900.0	6,693.0	12,027.5	6,693.0	120.2	122.5	90.01	-4,901.7	-1,519.8		699.8	460.7	239.04	2.927		
12,000.0	6,692.2	12,127.5	6,692.3	122.5	124.8	90.01	-5,001.7	-1,519.9		699.8	456.1	243.67	2.872		
12,100.0	6,691.5	12,227.5	6,691.5	124.8	127.0	90.01	-5,101.7	-1,519.9		699.8	451.5	248.30	2.818		
12,200.0	6,690.7	12,327.5	6,690.8	127.1	129.3	90.01	-5,201.7	-1,520.0		699.8	446.9	252.94	2.767		
12,300.0	6,690.0	12,427.5	6,690.1	129.4	131.6	90.01	-5,301.7	-1,520.1		699.8	442.2	257.57	2.717		
12,400.0	6,689.3	12,527.5	6,689.3	131.7	133.9	90.01	-5,401.7	-1,520.2		699.8	437.6	262.21	2.669		
12,500.0	6,688.5	12,627.5	6,688.6	134.0	136.1	90.01	-5,501.7	-1,520.2		699.9	433.0	266.86	2.623		
12,600.0	6,687.8	12,727.5	6,687.9	136.3	138.4	90.01	-5,601.7	-1,520.3		699.9	428.4	271.50	2.578		
12,700.0	6,687.1	12,827.5	6,687.1	138.7	140.7	90.01	-5,701.7	-1,520.4		699.9	423.7	276.15	2.534		
12,800.0	6,686.3	12,927.5	6,686.4	141.0	143.0	90.01	-5,801.7	-1,520.5		699.9	419.1	280.80	2.493		
12,900.0	6,685.6	13,027.5	6,685.7	143.3	145.3	90.01	-5,901.7	-1,520.5		699.9	414.5	285.45	2.452		
13,000.0	6,684.9	13,127.5	6,684.9	145.6	147.6	90.01	-6,001.6	-1,520.6		699.9	409.8	290.10	2.413		
13,100.0	6,684.1	13,227.5	6,684.2	147.9	149.8	90.01	-6,101.6	-1,520.7		699.9	405.2	294.75	2.375		
13,200.0	6,683.4	13,327.5	6,683.4	150.2	152.1	90.00	-6,201.6	-1,520.8		700.0	400.6	299.41	2.338		

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #2 (1-25-17)										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)			
13,300.0	6,682.6	13,427.5	6,682.7	152.6	154.4	90.00	-6,301.6	-1,520.8	700.0	395.9	304.06	2.302		
13,400.0	6,681.9	13,527.5	6,682.0	154.9	156.7	90.00	-6,401.6	-1,520.9	700.0	391.3	308.72	2.267		
13,500.0	6,681.2	13,627.5	6,681.2	157.2	159.0	90.00	-6,501.6	-1,521.0	700.0	386.6	313.38	2.234		
13,600.0	6,680.4	13,727.5	6,680.5	159.5	161.3	90.00	-6,601.6	-1,521.1	700.0	382.0	318.04	2.201		
13,700.0	6,679.7	13,827.5	6,679.8	161.9	163.6	90.00	-6,701.6	-1,521.1	700.0	377.3	322.70	2.169		
13,800.0	6,679.0	13,927.5	6,679.0	164.2	165.9	90.00	-6,801.6	-1,521.2	700.1	372.7	327.36	2.138		
13,900.0	6,678.2	14,027.5	6,678.3	166.5	168.2	90.00	-6,901.6	-1,521.3	700.1	368.0	332.03	2.108		
14,000.0	6,677.5	14,127.5	6,677.6	168.8	170.4	90.00	-7,001.6	-1,521.4	700.1	363.5	336.57	2.080		
14,067.2	6,677.0	14,194.7	6,677.1	170.4	171.7	90.00	-7,068.9	-1,521.4	700.1	360.7	339.41	2.063 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-323 - Wellbore #1 - Plan #2 (1-25-17)													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	-88.63	0.4	-15.0	15.0	15.0	0.00	9,294.379		
100.0	100.0	101.0	101.0	0.1	0.1	-88.63	0.4	-15.0	15.0	14.8	0.28	54.118		
200.0	200.0	201.0	201.0	0.4	0.4	-88.63	0.4	-15.0	15.0	14.2	0.83	18.159		
300.0	300.0	301.0	301.0	0.7	0.7	-88.63	0.4	-15.0	15.0	13.7	1.38	10.910		
400.0	400.0	401.0	401.0	1.0	1.0	-88.63	0.4	-15.0	15.0	13.1	1.93	7.797		
500.0	500.0	501.0	501.0	1.2	1.2	-88.63	0.4	-15.0	15.0	12.6	2.48	6.067		
600.0	600.0	601.0	601.0	1.5	1.5	-88.63	0.4	-15.0	15.0	12.0	3.03	4.965		
700.0	700.0	701.0	701.0	1.8	1.8	-88.63	0.4	-15.0	15.0	11.5	3.58	4.201		
766.3	766.3	767.3	767.3	2.0	2.0	-88.63	0.4	-15.0	15.0	11.1	3.95	3.813 CC		
800.0	800.0	801.0	801.0	2.1	2.1	-88.63	0.4	-15.0	15.0	10.9	4.13	3.642		
900.0	900.0	900.6	900.6	2.3	2.3	-86.77	0.9	-16.2	16.3	11.6	4.67	3.483		
1,000.0	1,000.0	1,000.0	999.9	2.6	2.6	-82.63	2.6	-19.8	20.0	14.8	5.21	3.836		
1,100.0	1,100.0	1,099.4	1,099.1	2.9	2.9	-20.49	5.3	-25.7	25.1	19.3	5.74	4.370		
1,200.0	1,199.9	1,198.6	1,197.8	3.1	3.2	-18.84	9.1	-33.9	30.3	24.0	6.26	4.833		
1,300.0	1,299.7	1,297.6	1,296.2	3.4	3.5	-18.12	14.0	-44.4	35.5	28.7	6.79	5.231		
1,400.0	1,399.3	1,396.5	1,394.1	3.7	3.8	-17.97	19.9	-57.2	40.8	33.5	7.32	5.573		
1,500.0	1,498.6	1,495.2	1,491.4	4.0	4.2	-18.20	26.9	-72.3	46.2	38.3	7.87	5.869		
1,600.0	1,597.5	1,593.9	1,588.1	4.4	4.6	-18.69	34.9	-89.6	51.6	43.1	8.42	6.123		
1,700.0	1,696.1	1,692.3	1,684.2	4.7	5.1	-19.36	44.0	-109.2	57.0	48.0	8.99	6.339		
1,800.0	1,794.2	1,790.7	1,779.6	5.1	5.6	-20.16	54.1	-131.0	62.5	52.9	9.58	6.520		
1,891.1	1,883.1	1,881.0	1,866.7	5.5	6.1	-21.04	64.1	-152.7	67.3	57.1	10.15	6.629		
1,900.0	1,891.7	1,889.8	1,875.2	5.6	6.2	-21.15	65.1	-154.8	67.7	57.5	10.21	6.629		
2,000.0	1,989.0	1,989.7	1,971.5	6.1	6.8	-22.29	76.3	-179.1	72.1	61.2	10.89	6.621		
2,100.0	2,086.3	2,089.6	2,067.7	6.6	7.4	-23.30	87.6	-203.3	76.6	65.0	11.60	6.602		
2,200.0	2,183.6	2,189.5	2,164.0	7.1	8.0	-24.20	98.8	-227.6	81.0	68.7	12.32	6.575		
2,300.0	2,280.9	2,289.4	2,260.2	7.7	8.7	-25.01	110.0	-251.8	85.5	72.5	13.07	6.543		
2,400.0	2,378.2	2,389.3	2,356.5	8.2	9.3	-25.73	121.3	-276.1	90.1	76.2	13.84	6.508		
2,500.0	2,475.4	2,489.2	2,452.7	8.8	10.0	-26.39	132.5	-300.4	94.6	80.0	14.62	6.470		
2,600.0	2,572.7	2,589.1	2,549.0	9.3	10.6	-26.98	143.8	-324.6	99.1	83.7	15.41	6.430		
2,700.0	2,670.0	2,689.0	2,645.2	9.9	11.3	-27.52	155.0	-348.9	103.7	87.4	16.22	6.391		
2,800.0	2,767.3	2,788.9	2,741.4	10.5	12.0	-28.02	166.2	-373.1	108.2	91.2	17.04	6.351		
2,900.0	2,864.6	2,888.8	2,837.7	11.1	12.7	-28.48	177.5	-397.4	112.8	94.9	17.87	6.312		
3,000.0	2,961.9	2,988.6	2,933.9	11.7	13.3	-28.90	188.7	-421.6	117.4	98.7	18.71	6.274		
3,100.0	3,059.2	3,088.5	3,030.2	12.2	14.0	-29.29	199.9	-445.9	121.9	102.4	19.55	6.237		
3,200.0	3,156.5	3,188.4	3,126.4	12.8	14.7	-29.65	211.2	-470.2	126.5	106.1	20.40	6.201		
3,300.0	3,253.8	3,288.3	3,222.7	13.4	15.4	-29.99	222.4	-494.4	131.1	109.8	21.26	6.167		
3,400.0	3,351.1	3,388.2	3,318.9	14.0	16.1	-30.30	233.6	-518.7	135.7	113.6	22.13	6.133		
3,500.0	3,448.4	3,488.1	3,415.2	14.6	16.8	-30.60	244.9	-542.9	140.3	117.3	23.00	6.101		
3,600.0	3,545.6	3,588.0	3,511.4	15.2	17.4	-30.87	256.1	-567.2	144.9	121.0	23.87	6.070		
3,700.0	3,642.9	3,687.9	3,607.7	15.8	18.1	-31.13	267.3	-591.4	149.5	124.7	24.75	6.041		
3,800.0	3,740.2	3,787.8	3,703.9	16.4	18.8	-31.37	278.6	-615.7	154.1	128.5	25.63	6.012		
3,900.0	3,837.5	3,887.7	3,800.2	17.0	19.5	-31.60	289.8	-640.0	158.7	132.2	26.52	5.985		
4,000.0	3,934.8	3,987.6	3,896.4	17.6	20.2	-31.81	301.1	-664.2	163.3	135.9	27.41	5.959		
4,100.0	4,032.1	4,087.5	3,992.7	18.2	20.9	-32.02	312.3	-688.5	167.9	139.6	28.30	5.934		
4,200.0	4,129.4	4,187.3	4,088.9	18.8	21.6	-32.21	323.5	-712.7	172.5	143.4	29.19	5.910		
4,300.0	4,226.7	4,287.2	4,185.2	19.4	22.3	-32.39	334.8	-737.0	177.2	147.1	30.09	5.887		
4,400.0	4,324.0	4,387.1	4,281.4	20.0	23.0	-32.57	346.0	-761.2	181.8	150.8	30.99	5.865		
4,500.0	4,421.3	4,487.0	4,377.7	20.6	23.7	-32.73	357.2	-785.5	186.4	154.5	31.89	5.844		
4,600.0	4,518.6	4,586.9	4,473.9	21.2	24.4	-32.89	368.5	-809.7	191.0	158.2	32.80	5.824		
4,700.0	4,615.8	4,686.8	4,570.2	21.8	25.0	-33.04	379.7	-834.0	195.6	161.9	33.70	5.805		
4,800.0	4,713.1	4,786.7	4,666.4	22.4	25.7	-33.18	390.9	-858.3	200.3	165.6	34.61	5.786		

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-323 - Wellbore #1 - Plan #2 (1-25-17)													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)			
4,900.0	4,810.4	4,886.6	4,762.7	23.0	26.4	-33.31	402.2	-882.5	204.9	169.4	35.52	5.768		
5,000.0	4,907.7	4,986.5	4,858.9	23.6	27.1	-33.44	413.4	-906.8	209.5	173.1	36.43	5.751		
5,100.0	5,005.0	5,086.4	4,955.2	24.3	27.8	-33.57	424.6	-931.0	214.1	176.8	37.34	5.734		
5,200.0	5,102.3	5,186.3	5,051.4	24.9	28.5	-33.69	435.9	-955.3	218.8	180.5	38.26	5.718		
5,236.4	5,137.7	5,222.6	5,086.4	25.1	28.8	-33.73	440.0	-964.1	220.4	181.9	38.59	5.712		
5,300.0	5,199.7	5,287.2	5,148.7	25.4	29.2	-33.74	447.2	-979.8	223.9	184.8	39.12	5.724		
5,400.0	5,297.9	5,394.6	5,252.8	25.8	29.8	-33.64	458.2	-1,003.5	229.7	189.9	39.79	5.774		
5,500.0	5,396.6	5,502.2	5,358.1	26.2	30.2	-33.48	467.6	-1,023.8	235.1	194.7	40.34	5.827		
5,600.0	5,495.8	5,610.0	5,464.3	26.5	30.6	-33.27	475.4	-1,040.5	240.0	199.2	40.79	5.883		
5,700.0	5,595.4	5,718.1	5,571.4	26.7	31.0	-33.02	481.4	-1,053.6	244.5	203.3	41.14	5.943		
5,800.0	5,695.3	5,826.3	5,679.1	26.9	31.2	-32.72	485.8	-1,063.0	248.5	207.2	41.38	6.006		
5,904.7	5,800.0	5,939.9	5,792.5	27.1	31.5	-91.20	488.5	-1,068.9	252.3	210.8	41.54	6.074		
6,000.0	5,895.3	6,043.4	5,895.9	27.2	31.6	-91.00	489.4	-1,070.7	254.0	212.2	41.83	6.072		
6,067.8	5,963.1	6,111.5	5,964.1	27.3	31.7	-91.00	489.4	-1,070.7	254.0	211.9	42.09	6.035		
6,100.0	5,995.3	6,143.7	5,996.3	27.4	31.8	89.12	489.4	-1,070.7	254.0	211.8	42.13	6.028		
6,150.0	6,045.1	6,193.5	6,046.1	27.4	31.8	89.96	489.4	-1,070.7	253.9	212.0	41.97	6.051		
6,151.5	6,046.6	6,195.0	6,047.6	27.4	31.8	90.00	489.3	-1,070.7	253.9	212.0	41.96	6.052		
6,200.0	6,094.6	6,243.4	6,096.0	27.4	31.9	91.13	487.5	-1,070.7	254.0	212.4	41.62	6.102		
6,250.0	6,143.5	6,293.6	6,145.9	27.4	31.9	92.29	482.4	-1,070.8	254.1	212.9	41.23	6.163		
6,300.0	6,191.7	6,344.2	6,195.8	27.4	31.9	93.44	474.0	-1,070.8	254.4	213.6	40.81	6.234		
6,350.0	6,238.9	6,395.1	6,245.3	27.3	31.9	94.58	462.1	-1,070.8	254.8	214.4	40.36	6.313		
6,400.0	6,284.9	6,446.4	6,294.3	27.3	31.8	95.70	446.9	-1,070.8	255.2	215.3	39.89	6.398		
6,450.0	6,329.5	6,498.1	6,342.4	27.2	31.8	96.80	428.3	-1,070.8	255.8	216.3	39.43	6.487		
6,500.0	6,372.6	6,550.1	6,389.5	27.1	31.7	97.86	406.3	-1,070.8	256.4	217.4	38.97	6.579		
6,550.0	6,413.9	6,602.4	6,435.3	27.0	31.6	98.89	381.0	-1,070.8	257.1	218.5	38.53	6.671		
6,600.0	6,453.3	6,655.1	6,479.6	26.9	31.5	99.88	352.4	-1,070.8	257.8	219.7	38.13	6.762		
6,650.0	6,490.5	6,708.2	6,522.0	26.7	31.4	100.82	320.6	-1,070.9	258.6	220.8	37.76	6.848		
6,700.0	6,525.5	6,761.5	6,562.4	26.6	31.3	101.71	285.7	-1,070.9	259.4	222.0	37.44	6.928		
6,750.0	6,558.1	6,815.2	6,600.5	26.5	31.2	102.55	247.9	-1,070.9	260.2	223.1	37.19	6.998		
6,800.0	6,588.2	6,869.2	6,636.0	26.4	31.1	103.33	207.2	-1,071.0	261.1	224.1	37.00	7.057		
6,850.0	6,615.6	6,923.5	6,668.7	26.3	31.0	104.05	163.9	-1,071.0	261.9	225.0	36.88	7.100		
6,900.0	6,640.2	6,978.1	6,698.4	26.2	30.9	104.70	118.1	-1,071.0	262.6	225.8	36.85	7.127		
6,950.0	6,661.9	7,032.9	6,724.9	26.1	30.8	105.28	70.1	-1,071.1	263.4	226.4	36.92	7.134		
7,000.0	6,680.6	7,088.0	6,747.9	26.0	30.7	105.79	20.1	-1,071.1	264.0	226.9	37.08	7.120		
7,050.0	6,696.2	7,143.2	6,767.4	25.9	30.7	106.23	-31.5	-1,071.1	264.6	227.3	37.35	7.085		
7,100.0	6,708.7	7,198.6	6,783.1	25.9	30.6	106.60	-84.7	-1,071.2	265.1	227.4	37.73	7.028		
7,150.0	6,718.0	7,254.1	6,794.9	25.9	30.6	106.89	-138.9	-1,071.2	265.5	227.3	38.21	6.949		
7,200.0	6,724.0	7,309.8	6,802.8	26.0	30.7	107.10	-194.0	-1,071.2	265.8	227.0	38.82	6.849		
7,250.0	6,726.8	7,365.5	6,806.6	26.1	30.7	107.24	-249.6	-1,071.3	266.0	226.5	39.52	6.731		
7,273.4	6,727.0	7,391.6	6,807.0	26.2	30.8	107.27	-275.7	-1,071.3	266.1	226.2	39.89	6.672		
7,273.4	6,727.0	7,391.6	6,807.0	26.2	30.8	107.27	-275.7	-1,071.3	266.1	226.2	39.89	6.672		
7,274.4	6,727.0	7,392.7	6,807.0	26.2	30.8	107.28	-276.8	-1,071.3	266.1	226.2	39.90	6.669		
7,300.0	6,726.8	7,418.7	6,806.8	26.3	30.9	107.28	-302.7	-1,071.3	266.1	225.8	40.35	6.596		
7,400.0	6,726.1	7,518.7	6,806.1	27.0	31.3	107.28	-402.7	-1,071.4	266.1	223.7	42.42	6.274		
7,500.0	6,725.3	7,618.7	6,805.4	27.9	31.9	107.27	-502.7	-1,071.5	266.1	221.3	44.85	5.934		
7,600.0	6,724.6	7,718.7	6,804.6	29.0	32.7	107.27	-602.7	-1,071.5	266.2	218.6	47.59	5.592		
7,700.0	6,723.9	7,818.7	6,803.9	30.4	33.8	107.27	-702.7	-1,071.6	266.2	215.6	50.59	5.261		
7,800.0	6,723.1	7,918.7	6,803.2	31.9	35.0	107.27	-802.7	-1,071.7	266.2	212.4	53.80	4.948		
7,900.0	6,722.4	8,018.7	6,802.4	33.5	36.4	107.27	-902.7	-1,071.8	266.2	209.0	57.19	4.655		
8,000.0	6,721.7	8,118.7	6,801.7	35.2	37.9	107.27	-1,002.7	-1,071.8	266.2	205.5	60.72	4.384		

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-323 - Wellbore #1 - Plan #2 (1-25-17)													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
8,100.0	6,720.9	8,218.7	6,800.9	37.0	39.5	107.27	-1,102.7	-1,071.9	266.2	201.8	64.38	4.135			
8,200.0	6,720.2	8,318.7	6,800.2	38.9	41.2	107.27	-1,202.7	-1,072.0	266.2	198.1	68.14	3.907			
8,300.0	6,719.4	8,418.7	6,799.5	40.8	43.0	107.27	-1,302.7	-1,072.1	266.2	194.2	72.00	3.698			
8,400.0	6,718.7	8,518.7	6,798.7	42.7	44.8	107.27	-1,402.7	-1,072.1	266.3	190.3	75.92	3.507			
8,500.0	6,718.0	8,618.7	6,798.0	44.7	46.7	107.27	-1,502.7	-1,072.2	266.3	186.4	79.91	3.332			
8,600.0	6,717.2	8,718.7	6,797.3	46.7	48.6	107.26	-1,602.7	-1,072.3	266.3	182.3	83.95	3.172			
8,700.0	6,716.5	8,818.7	6,796.5	48.8	50.6	107.26	-1,702.7	-1,072.4	266.3	178.2	88.04	3.025			
8,800.0	6,715.8	8,918.7	6,795.8	50.8	52.6	107.26	-1,802.7	-1,072.4	266.3	174.1	92.17	2.889			
8,900.0	6,715.0	9,018.7	6,795.1	52.9	54.6	107.26	-1,902.7	-1,072.5	266.3	170.0	96.34	2.764			
9,000.0	6,714.3	9,118.7	6,794.3	55.1	56.6	107.26	-2,002.7	-1,072.6	266.3	165.8	100.53	2.649			
9,100.0	6,713.6	9,218.7	6,793.6	57.2	58.7	107.26	-2,102.7	-1,072.7	266.3	161.6	104.76	2.542			
9,200.0	6,712.8	9,318.7	6,792.8	59.3	60.8	107.26	-2,202.7	-1,072.7	266.4	157.3	109.00	2.444			
9,300.0	6,712.1	9,418.7	6,792.1	61.5	62.9	107.26	-2,302.7	-1,072.8	266.4	153.1	113.27	2.352			
9,400.0	6,711.3	9,518.7	6,791.4	63.7	65.0	107.26	-2,402.7	-1,072.9	266.4	148.8	117.56	2.266			
9,500.0	6,710.6	9,618.7	6,790.6	65.9	67.2	107.26	-2,502.7	-1,073.0	266.4	144.5	121.87	2.186			
9,600.0	6,709.9	9,718.7	6,789.9	68.1	69.3	107.26	-2,602.7	-1,073.0	266.4	140.2	126.19	2.111			
9,700.0	6,709.1	9,818.7	6,789.2	70.3	71.5	107.26	-2,702.7	-1,073.1	266.4	135.9	130.52	2.041			
9,800.0	6,708.4	9,918.7	6,788.4	72.5	73.7	107.25	-2,802.7	-1,073.2	266.4	131.6	134.87	1.976			
9,900.0	6,707.7	10,018.7	6,787.7	74.7	75.9	107.25	-2,902.7	-1,073.3	266.4	127.2	139.22	1.914			
10,000.0	6,706.9	10,118.7	6,787.0	76.9	78.1	107.25	-3,002.7	-1,073.3	266.5	122.9	143.59	1.856			
10,100.0	6,706.2	10,218.7	6,786.2	79.2	80.3	107.25	-3,102.7	-1,073.4	266.5	118.5	147.97	1.801			
10,200.0	6,705.5	10,318.7	6,785.5	81.4	82.5	107.25	-3,202.6	-1,073.5	266.5	114.1	152.36	1.749			
10,300.0	6,704.7	10,418.7	6,784.7	83.7	84.7	107.25	-3,302.6	-1,073.5	266.5	109.7	156.75	1.700			
10,400.0	6,704.0	10,518.7	6,784.0	85.9	87.0	107.25	-3,402.6	-1,073.6	266.5	105.4	161.15	1.654			
10,500.0	6,703.3	10,618.7	6,783.3	88.2	89.2	107.25	-3,502.6	-1,073.7	266.5	101.0	165.56	1.610			
10,600.0	6,702.5	10,718.7	6,782.5	90.5	91.4	107.25	-3,602.6	-1,073.8	266.5	96.6	169.97	1.568			
10,700.0	6,701.8	10,818.7	6,781.8	92.7	93.7	107.25	-3,702.6	-1,073.8	266.5	92.2	174.39	1.528			
10,800.0	6,701.0	10,918.7	6,781.1	95.0	95.9	107.25	-3,802.6	-1,073.9	266.6	87.7	178.82	1.491 Level 3			
10,900.0	6,700.3	11,018.7	6,780.3	97.3	98.2	107.24	-3,902.6	-1,074.0	266.6	83.3	183.25	1.455 Level 3			
11,000.0	6,699.6	11,118.7	6,779.6	99.6	100.4	107.24	-4,002.6	-1,074.1	266.6	78.9	187.68	1.420 Level 3			
11,100.0	6,698.8	11,218.7	6,778.9	101.8	102.7	107.24	-4,102.6	-1,074.1	266.6	74.5	192.12	1.388 Level 3			
11,200.0	6,698.1	11,318.7	6,778.1	104.1	105.0	107.24	-4,202.6	-1,074.2	266.6	70.0	196.56	1.356 Level 3			
11,300.0	6,697.4	11,418.7	6,777.4	106.4	107.3	107.24	-4,302.6	-1,074.3	266.6	65.6	201.01	1.326 Level 3			
11,400.0	6,696.6	11,518.7	6,776.7	108.7	109.5	107.24	-4,402.6	-1,074.4	266.6	61.2	205.46	1.298 Level 3			
11,500.0	6,695.9	11,618.7	6,775.9	111.0	111.8	107.24	-4,502.6	-1,074.4	266.6	56.7	209.91	1.270 Level 3			
11,600.0	6,695.2	11,718.7	6,775.2	113.3	114.1	107.24	-4,602.6	-1,074.5	266.7	52.3	214.36	1.244 Level 2			
11,700.0	6,694.4	11,818.7	6,774.4	115.6	116.4	107.24	-4,702.6	-1,074.6	266.7	47.8	218.82	1.219 Level 2			
11,800.0	6,693.7	11,918.7	6,773.7	117.9	118.7	107.24	-4,802.6	-1,074.7	266.7	43.4	223.28	1.194 Level 2			
11,900.0	6,693.0	12,018.7	6,773.0	120.2	120.9	107.24	-4,902.6	-1,074.7	266.7	38.9	227.75	1.171 Level 2			
12,000.0	6,692.2	12,118.7	6,772.2	122.5	123.2	107.23	-5,002.6	-1,074.8	266.7	34.5	232.21	1.149 Level 2			
12,100.0	6,691.5	12,218.7	6,771.5	124.8	125.5	107.23	-5,102.6	-1,074.9	266.7	30.0	236.68	1.127 Level 2			
12,200.0	6,690.7	12,318.7	6,770.8	127.1	127.8	107.23	-5,202.6	-1,075.0	266.7	25.6	241.15	1.106 Level 2			
12,300.0	6,690.0	12,418.7	6,770.0	129.4	130.1	107.23	-5,302.6	-1,075.0	266.7	21.1	245.62	1.086 Level 2			
12,400.0	6,689.3	12,518.7	6,769.3	131.7	132.4	107.23	-5,402.6	-1,075.1	266.8	16.7	250.10	1.067 Level 2			
12,500.0	6,688.5	12,618.7	6,768.6	134.0	134.7	107.23	-5,502.6	-1,075.2	266.8	12.2	254.57	1.048 Level 2			
12,600.0	6,687.8	12,718.7	6,767.8	136.3	137.0	107.23	-5,602.6	-1,075.3	266.8	7.7	259.05	1.030 Level 2			
12,700.0	6,687.1	12,818.7	6,767.1	138.7	139.3	107.23	-5,702.6	-1,075.3	266.8	3.3	263.53	1.012 Level 2			
12,800.0	6,686.3	12,918.7	6,766.3	141.0	141.6	107.23	-5,802.6	-1,075.4	266.8	-1.2	268.01	0.996 Level 1			
12,900.0	6,685.6	13,018.7	6,765.6	143.3	143.9	107.23	-5,902.6	-1,075.5	266.8	-5.7	272.49	0.979 Level 1			
13,000.0	6,684.9	13,118.7	6,764.9	145.6	146.2	107.23	-6,002.6	-1,075.6	266.8	-10.1	276.98	0.963 Level 1			
13,100.0	6,684.1	13,218.7	6,764.1	147.9	148.5	107.22	-6,102.6	-1,075.6	266.8	-14.6	281.46	0.948 Level 1			

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-323 - Wellbore #1 - Plan #2 (1-25-17)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,200.0	6,683.4	13,318.7	6,763.4	150.2	150.9	107.22	-6,202.6	-1,075.7	266.9	-19.1	285.95	0.933	Level 1	
13,300.0	6,682.6	13,418.7	6,762.7	152.6	153.2	107.22	-6,302.6	-1,075.8	266.9	-23.6	290.44	0.919	Level 1	
13,400.0	6,681.9	13,518.7	6,761.9	154.9	155.5	107.22	-6,402.6	-1,075.8	266.9	-28.0	294.93	0.905	Level 1	
13,500.0	6,681.2	13,618.7	6,761.2	157.2	157.8	107.22	-6,502.6	-1,075.9	266.9	-32.5	299.42	0.891	Level 1	
13,600.0	6,680.4	13,718.7	6,760.5	159.5	160.1	107.22	-6,602.6	-1,076.0	266.9	-37.0	303.91	0.878	Level 1	
13,700.0	6,679.7	13,818.7	6,759.7	161.9	162.4	107.22	-6,702.6	-1,076.1	266.9	-41.5	308.40	0.866	Level 1	
13,800.0	6,679.0	13,918.7	6,759.0	164.2	164.7	107.22	-6,802.5	-1,076.1	266.9	-46.0	312.89	0.853	Level 1	
13,900.0	6,678.2	14,018.7	6,758.2	166.5	167.1	107.22	-6,902.5	-1,076.2	266.9	-50.4	317.39	0.841	Level 1	
14,000.0	6,677.5	14,118.7	6,757.5	168.8	169.4	107.22	-7,002.5	-1,076.3	267.0	-54.9	321.88	0.829	Level 1	
14,067.2	6,677.0	14,185.9	6,757.0	170.4	170.9	107.22	-7,069.8	-1,076.3	267.0	-57.9	324.90	0.822	Level 1, ES, SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17)													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)					
0.0	0.0	0.0	0.0	0.0	0.0	-89.30	0.4	-30.1	30.1							
100.0	100.0	100.0	100.0	0.1	0.1	-89.30	0.4	-30.1	30.1	29.8	0.28	109.296				
200.0	200.0	200.0	200.0	0.4	0.4	-89.30	0.4	-30.1	30.1	29.3	0.83	36.432				
300.0	300.0	300.0	300.0	0.7	0.7	-89.30	0.4	-30.1	30.1	28.7	1.38	21.859				
400.0	400.0	400.0	400.0	1.0	1.0	-89.30	0.4	-30.1	30.1	28.2	1.93	15.614	CC, ES			
500.0	500.0	499.2	499.2	1.2	1.2	-88.48	0.8	-31.3	31.3	28.8	2.47	12.693				
600.0	600.0	598.4	598.3	1.5	1.5	-86.37	2.2	-34.9	35.0	32.0	3.01	11.643				
700.0	700.0	697.2	696.9	1.8	1.8	-83.71	4.5	-40.9	41.2	37.7	3.56	11.591				
800.0	800.0	795.6	794.9	2.1	2.1	-81.11	7.7	-49.2	50.1	45.9	4.13	12.136				
900.0	900.0	893.6	892.2	2.3	2.4	-78.87	11.8	-59.8	61.5	56.8	4.71	13.047				
1,000.0	1,000.0	990.8	988.5	2.6	2.8	-77.06	16.7	-72.7	75.4	70.1	5.32	14.175				
1,100.0	1,100.0	1,087.6	1,083.9	2.9	3.2	-16.96	22.5	-87.7	90.7	85.0	5.76	15.766				
1,200.0	1,199.9	1,183.9	1,178.4	3.1	3.6	-16.30	29.1	-104.9	106.1	99.8	6.30	16.829				
1,300.0	1,299.7	1,279.9	1,272.1	3.4	4.1	-16.01	36.5	-124.3	121.4	114.5	6.86	17.698				
1,400.0	1,399.3	1,375.5	1,364.9	3.7	4.6	-15.96	44.7	-145.8	136.7	129.2	7.42	18.409				
1,500.0	1,498.6	1,470.7	1,456.8	4.0	5.2	-16.08	53.8	-169.3	151.9	143.9	8.00	18.990				
1,600.0	1,597.5	1,569.2	1,551.3	4.4	5.9	-16.37	63.6	-195.0	166.2	157.6	8.59	19.345				
1,700.0	1,696.1	1,668.5	1,646.6	4.7	6.5	-16.86	73.6	-221.0	178.1	168.9	9.21	19.342				
1,800.0	1,794.2	1,768.0	1,742.2	5.1	7.2	-17.53	83.5	-247.0	187.5	177.6	9.84	19.062				
1,891.1	1,883.1	1,858.9	1,829.4	5.5	7.9	-18.30	92.6	-270.7	193.9	183.5	10.43	18.599				
1,900.0	1,891.7	1,867.7	1,837.9	5.6	7.9	-18.38	93.5	-273.0	194.4	183.9	10.49	18.542				
2,000.0	1,989.0	1,967.5	1,933.7	6.1	8.6	-19.31	103.5	-299.1	200.4	189.2	11.18	17.928				
2,100.0	2,086.3	2,067.3	2,029.4	6.6	9.3	-20.18	113.5	-325.2	206.4	194.5	11.89	17.364				
2,200.0	2,183.6	2,167.0	2,125.2	7.1	10.0	-21.00	123.5	-351.3	212.5	199.9	12.61	16.843				
2,300.0	2,280.9	2,266.8	2,221.0	7.7	10.7	-21.78	133.5	-377.3	218.6	205.2	13.36	16.363				
2,400.0	2,378.2	2,366.6	2,316.8	8.2	11.5	-22.51	143.5	-403.4	224.7	210.6	14.12	15.918				
2,500.0	2,475.4	2,466.3	2,412.6	8.8	12.2	-23.21	153.5	-429.5	230.9	216.0	14.89	15.507				
2,600.0	2,572.7	2,566.1	2,508.4	9.3	12.9	-23.87	163.5	-455.6	237.1	221.4	15.68	15.125				
2,700.0	2,670.0	2,665.9	2,604.1	9.9	13.6	-24.49	173.5	-481.7	243.3	226.8	16.47	14.770				
2,800.0	2,767.3	2,765.7	2,699.9	10.5	14.3	-25.09	183.5	-507.7	249.6	232.3	17.28	14.440				
2,900.0	2,864.6	2,865.4	2,795.7	11.1	15.1	-25.65	193.5	-533.8	255.9	237.8	18.11	14.132				
3,000.0	2,961.9	2,965.2	2,891.5	11.7	15.8	-26.19	203.5	-559.9	262.2	243.2	18.94	13.844				
3,100.0	3,059.2	3,065.0	2,987.3	12.2	16.5	-26.70	213.5	-586.0	268.5	248.7	19.78	13.576				
3,200.0	3,156.5	3,164.7	3,083.1	12.8	17.2	-27.19	223.5	-612.0	274.9	254.2	20.63	13.324				
3,300.0	3,253.8	3,264.5	3,178.8	13.4	18.0	-27.66	233.5	-638.1	281.2	259.7	21.49	13.088				
3,400.0	3,351.1	3,364.3	3,274.6	14.0	18.7	-28.10	243.5	-664.2	287.6	265.3	22.35	12.867				
3,500.0	3,448.4	3,464.1	3,370.4	14.6	19.4	-28.53	253.5	-690.3	294.0	270.8	23.23	12.659				
3,600.0	3,545.6	3,563.8	3,466.2	15.2	20.1	-28.94	263.5	-716.3	300.5	276.3	24.11	12.463				
3,700.0	3,642.9	3,663.6	3,562.0	15.8	20.9	-29.33	273.5	-742.4	306.9	281.9	25.00	12.278				
3,800.0	3,740.2	3,763.4	3,657.7	16.4	21.6	-29.70	283.5	-768.5	313.3	287.5	25.89	12.103				
3,900.0	3,837.5	3,863.1	3,753.5	17.0	22.3	-30.06	293.5	-794.6	319.8	293.0	26.79	11.939				
4,000.0	3,934.8	3,962.9	3,849.3	17.6	23.0	-30.41	303.5	-820.7	326.3	298.6	27.69	11.783				
4,100.0	4,032.1	4,062.7	3,945.1	18.2	23.8	-30.74	313.5	-846.7	332.8	304.2	28.60	11.635				
4,200.0	4,129.4	4,162.5	4,040.9	18.8	24.5	-31.06	323.5	-872.8	339.3	309.8	29.52	11.495				
4,300.0	4,226.7	4,262.2	4,136.7	19.4	25.2	-31.37	333.5	-898.9	345.8	315.3	30.43	11.362				
4,400.0	4,324.0	4,362.0	4,232.4	20.0	25.9	-31.66	343.5	-925.0	352.3	320.9	31.36	11.235				
4,500.0	4,421.3	4,461.8	4,328.2	20.6	26.7	-31.95	353.5	-951.0	358.8	326.5	32.28	11.115				
4,600.0	4,518.6	4,561.5	4,424.0	21.2	27.4	-32.23	363.5	-977.1	365.4	332.1	33.21	11.000				
4,700.0	4,615.8	4,661.3	4,519.8	21.8	28.1	-32.49	373.5	-1,003.2	371.9	337.8	34.15	10.891				
4,800.0	4,713.1	4,761.1	4,615.6	22.4	28.9	-32.75	383.5	-1,029.3	378.4	343.4	35.09	10.787				
4,900.0	4,810.4	4,860.9	4,711.4	23.0	29.6	-32.99	393.5	-1,055.3	385.0	349.0	36.03	10.687				

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,000.0	4,907.7	4,960.6	4,807.1	23.6	30.3	-33.23	403.5	-1,081.4	391.6	354.6	36.97	10.592		
5,100.0	5,005.0	5,060.4	4,902.9	24.3	31.0	-33.47	413.5	-1,107.5	398.1	360.2	37.92	10.501		
5,200.0	5,102.3	5,160.2	4,998.7	24.9	31.8	-33.69	423.5	-1,133.6	404.7	365.9	38.86	10.414		
5,236.4	5,137.7	5,196.5	5,033.6	25.1	32.0	-33.77	427.2	-1,143.1	407.1	367.9	39.21	10.383		
5,300.0	5,199.7	5,259.9	5,094.4	25.4	32.5	-33.90	433.5	-1,159.6	411.9	372.1	39.77	10.356		
5,400.0	5,297.9	5,359.4	5,190.0	25.8	33.2	-33.92	443.5	-1,185.7	421.8	381.2	40.51	10.412		
5,500.0	5,396.6	5,473.1	5,299.7	26.2	33.9	-33.75	454.2	-1,213.6	433.0	391.9	41.11	10.533		
5,600.0	5,495.8	5,588.8	5,412.4	26.5	34.4	-33.54	463.6	-1,237.9	443.4	401.9	41.59	10.662		
5,700.0	5,595.4	5,705.0	5,526.6	26.7	34.9	-33.28	471.3	-1,258.0	453.1	411.2	41.97	10.798		
5,800.0	5,695.3	5,821.7	5,642.1	26.9	35.3	-32.97	477.3	-1,273.8	462.0	419.8	42.23	10.940		
5,904.7	5,800.0	5,944.5	5,764.2	27.1	35.6	-91.46	481.9	-1,285.7	470.4	428.0	42.41	11.093		
6,000.0	5,895.3	6,056.8	5,876.2	27.2	35.8	-91.13	484.4	-1,292.3	476.0	433.3	42.68	11.152		
6,067.8	5,963.1	6,136.9	5,956.3	27.3	35.9	-91.03	485.3	-1,294.5	477.8	434.9	42.91	11.134		
6,100.0	5,995.3	6,175.0	5,994.4	27.4	36.0	89.04	485.4	-1,294.8	478.0	435.1	42.99	11.121		
6,150.0	6,045.1	6,225.7	6,045.1	27.4	36.0	89.49	485.4	-1,294.8	478.0	435.1	42.94	11.131		
6,183.1	6,077.9	6,258.5	6,077.9	27.4	36.1	90.00	485.4	-1,294.8	478.0	435.2	42.81	11.166		
6,200.0	6,094.6	6,275.2	6,094.6	27.4	36.1	90.32	485.4	-1,294.8	478.0	435.3	42.71	11.190		
6,250.0	6,143.5	6,324.6	6,144.0	27.4	36.1	91.47	484.9	-1,294.8	478.1	435.8	42.33	11.296		
6,300.0	6,191.7	6,374.7	6,194.0	27.4	36.2	92.66	481.6	-1,294.8	478.5	436.6	41.89	11.424		
6,350.0	6,238.9	6,425.5	6,244.3	27.3	36.2	93.84	474.9	-1,294.8	479.1	437.7	41.42	11.566		
6,400.0	6,284.9	6,477.0	6,294.8	27.3	36.2	95.02	464.6	-1,294.8	479.9	439.0	40.94	11.722		
6,450.0	6,329.5	6,529.3	6,345.2	27.2	36.1	96.18	450.8	-1,294.8	480.9	440.4	40.46	11.887		
6,500.0	6,372.6	6,582.3	6,395.2	27.1	36.1	97.31	433.3	-1,294.8	482.1	442.1	39.97	12.059		
6,550.0	6,413.9	6,636.2	6,444.7	27.0	36.1	98.42	412.0	-1,294.8	483.4	443.9	39.51	12.236		
6,600.0	6,453.3	6,690.8	6,493.2	26.9	36.0	99.50	386.9	-1,294.9	484.9	445.8	39.07	12.412		
6,650.0	6,490.5	6,746.2	6,540.4	26.7	35.9	100.53	358.0	-1,294.9	486.5	447.8	38.66	12.584		
6,700.0	6,525.5	6,802.4	6,586.1	26.6	35.8	101.52	325.2	-1,294.9	488.1	449.8	38.29	12.749		
6,750.0	6,558.1	6,859.4	6,629.8	26.5	35.7	102.46	288.7	-1,294.9	489.8	451.9	37.97	12.900		
6,800.0	6,588.2	6,917.2	6,671.2	26.4	35.6	103.34	248.4	-1,295.0	491.6	453.9	37.72	13.032		
6,850.0	6,615.6	6,975.8	6,709.9	26.3	35.5	104.16	204.5	-1,295.0	493.3	455.8	37.54	13.141		
6,900.0	6,640.2	7,035.0	6,745.6	26.2	35.4	104.92	157.1	-1,295.0	495.0	457.5	37.44	13.220		
6,950.0	6,661.9	7,095.0	6,777.8	26.1	35.3	105.60	106.6	-1,295.1	496.6	459.1	37.43	13.265		
7,000.0	6,680.6	7,155.6	6,806.2	26.0	35.2	106.20	53.1	-1,295.1	498.0	460.5	37.53	13.269		
7,050.0	6,696.2	7,216.7	6,830.6	25.9	35.1	106.72	-3.0	-1,295.1	499.3	461.6	37.75	13.228		
7,100.0	6,708.7	7,278.3	6,850.4	25.9	35.1	107.15	-61.3	-1,295.2	500.4	462.4	38.08	13.143		
7,150.0	6,718.0	7,340.4	6,865.7	25.9	35.1	107.50	-121.4	-1,295.2	501.4	462.8	38.52	13.014		
7,200.0	6,724.0	7,402.8	6,876.0	26.0	35.1	107.75	-182.9	-1,295.3	502.0	462.9	39.09	12.842		
7,250.0	6,726.8	7,465.4	6,881.3	26.1	35.2	107.92	-245.3	-1,295.3	502.5	462.7	39.80	12.627		
7,273.4	6,727.0	7,494.7	6,882.0	26.2	35.2	107.96	-274.6	-1,295.3	502.6	462.4	40.16	12.515		
7,273.4	6,727.0	7,494.7	6,882.0	26.2	35.2	107.96	-274.6	-1,295.3	502.6	462.4	40.16	12.515		
7,274.4	6,727.0	7,496.0	6,882.0	26.2	35.2	107.96	-275.9	-1,295.3	502.6	462.4	40.18	12.510		
7,300.0	6,726.8	7,522.3	6,882.0	26.3	35.3	107.98	-302.2	-1,295.3	502.7	462.1	40.59	12.384		
7,400.0	6,726.1	7,622.3	6,881.8	27.0	35.6	108.04	-402.2	-1,295.4	502.9	460.3	42.54	11.822		
7,500.0	6,725.3	7,722.3	6,881.7	27.9	36.1	108.11	-502.2	-1,295.5	503.1	458.2	44.89	11.207		
7,600.0	6,724.6	7,822.3	6,881.5	29.0	36.7	108.17	-602.2	-1,295.6	503.3	455.7	47.55	10.584		
7,700.0	6,723.9	7,922.3	6,881.4	30.4	37.5	108.23	-702.2	-1,295.6	503.5	453.0	50.47	9.976		
7,800.0	6,723.1	8,022.3	6,881.2	31.9	38.5	108.30	-802.2	-1,295.7	503.7	450.1	53.60	9.397		
7,900.0	6,722.4	8,122.3	6,881.1	33.5	39.6	108.36	-902.2	-1,295.8	503.8	446.9	56.91	8.853		
8,000.0	6,721.7	8,222.3	6,880.9	35.2	40.9	108.42	-1,002.2	-1,295.9	504.0	443.7	60.37	8.349		
8,100.0	6,720.9	8,322.3	6,880.8	37.0	42.3	108.48	-1,102.2	-1,295.9	504.2	440.3	63.96	7.884		

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17)										Offset Site Error:		0.0 ft
Survey Program:		0-MWD										Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
8,200.0	6,720.2	8,422.3	6,880.6	38.9	43.8	108.55	-1,202.2	-1,296.0	504.4	436.8	67.65	7.457		
8,300.0	6,719.4	8,522.3	6,880.5	40.8	45.5	108.61	-1,302.2	-1,296.1	504.7	433.2	71.42	7.066		
8,400.0	6,718.7	8,622.3	6,880.3	42.7	47.1	108.67	-1,402.2	-1,296.2	504.9	429.6	75.27	6.707		
8,500.0	6,718.0	8,722.3	6,880.2	44.7	48.9	108.74	-1,502.2	-1,296.2	505.1	425.9	79.19	6.378		
8,600.0	6,717.2	8,822.3	6,880.1	46.7	50.7	108.80	-1,602.2	-1,296.3	505.3	422.1	83.15	6.076		
8,700.0	6,716.5	8,922.3	6,879.9	48.8	52.6	108.86	-1,702.2	-1,296.4	505.5	418.3	87.16	5.799		
8,800.0	6,715.8	9,022.3	6,879.8	50.8	54.5	108.92	-1,802.2	-1,296.5	505.7	414.5	91.21	5.544		
8,900.0	6,715.0	9,122.3	6,879.6	52.9	56.4	108.99	-1,902.2	-1,296.5	505.9	410.6	95.30	5.308		
9,000.0	6,714.3	9,222.3	6,879.5	55.1	58.4	109.05	-2,002.2	-1,296.6	506.1	406.7	99.41	5.091		
9,100.0	6,713.6	9,322.3	6,879.3	57.2	60.4	109.11	-2,102.2	-1,296.7	506.3	402.7	103.55	4.889		
9,200.0	6,712.8	9,422.3	6,879.2	59.3	62.4	109.17	-2,202.2	-1,296.8	506.5	398.8	107.71	4.702		
9,300.0	6,712.1	9,522.3	6,879.0	61.5	64.5	109.24	-2,302.2	-1,296.8	506.7	394.8	111.89	4.529		
9,400.0	6,711.3	9,622.3	6,878.9	63.7	66.5	109.30	-2,402.2	-1,296.9	506.9	390.8	116.09	4.367		
9,500.0	6,710.6	9,722.3	6,878.7	65.9	68.6	109.36	-2,502.2	-1,297.0	507.1	386.8	120.30	4.216		
9,600.0	6,709.9	9,822.3	6,878.6	68.1	70.7	109.42	-2,602.2	-1,297.1	507.3	382.8	124.52	4.074		
9,700.0	6,709.1	9,922.3	6,878.4	70.3	72.8	109.48	-2,702.2	-1,297.1	507.5	378.8	128.75	3.942		
9,800.0	6,708.4	10,022.3	6,878.3	72.5	75.0	109.55	-2,802.2	-1,297.2	507.7	374.7	133.00	3.818		
9,900.0	6,707.7	10,122.3	6,878.1	74.7	77.1	109.61	-2,902.2	-1,297.3	507.9	370.7	137.25	3.701		
10,000.0	6,706.9	10,222.3	6,878.0	76.9	79.3	109.67	-3,002.2	-1,297.4	508.2	366.6	141.51	3.591		
10,100.0	6,706.2	10,322.3	6,877.8	79.2	81.5	109.73	-3,102.2	-1,297.4	508.4	362.6	145.78	3.487		
10,200.0	6,705.5	10,422.3	6,877.7	81.4	83.6	109.79	-3,202.1	-1,297.5	508.6	358.5	150.06	3.389		
10,300.0	6,704.7	10,522.3	6,877.6	83.7	85.8	109.86	-3,302.1	-1,297.6	508.8	354.5	154.34	3.297		
10,400.0	6,704.0	10,622.3	6,877.4	85.9	88.0	109.92	-3,402.1	-1,297.7	509.0	350.4	158.62	3.209		
10,500.0	6,703.3	10,722.3	6,877.3	88.2	90.2	109.98	-3,502.1	-1,297.7	509.2	346.3	162.91	3.126		
10,600.0	6,702.5	10,822.3	6,877.1	90.5	92.5	110.04	-3,602.1	-1,297.8	509.4	342.2	167.20	3.047		
10,700.0	6,701.8	10,922.3	6,877.0	92.7	94.7	110.10	-3,702.1	-1,297.9	509.7	338.2	171.49	2.972		
10,800.0	6,701.0	11,022.3	6,876.8	95.0	96.9	110.17	-3,802.1	-1,298.0	509.9	334.1	175.79	2.901		
10,900.0	6,700.3	11,122.2	6,876.7	97.3	99.1	110.23	-3,902.1	-1,298.0	510.1	330.0	180.08	2.833		
11,000.0	6,699.6	11,222.2	6,876.5	99.6	101.4	110.29	-4,002.1	-1,298.1	510.3	325.9	184.38	2.768		
11,100.0	6,698.8	11,322.2	6,876.4	101.8	103.6	110.35	-4,102.1	-1,298.2	510.5	321.8	188.68	2.706		
11,200.0	6,698.1	11,422.2	6,876.2	104.1	105.9	110.41	-4,202.1	-1,298.3	510.7	317.8	192.98	2.647		
11,300.0	6,697.4	11,522.2	6,876.1	106.4	108.1	110.47	-4,302.1	-1,298.3	511.0	313.7	197.29	2.590		
11,400.0	6,696.6	11,622.2	6,875.9	108.7	110.4	110.53	-4,402.1	-1,298.4	511.2	309.6	201.59	2.536		
11,500.0	6,695.9	11,722.2	6,875.8	111.0	112.6	110.59	-4,502.1	-1,298.5	511.4	305.5	205.89	2.484		
11,600.0	6,695.2	11,822.2	6,875.6	113.3	114.9	110.66	-4,602.1	-1,298.6	511.6	301.4	210.19	2.434		
11,700.0	6,694.4	11,922.2	6,875.5	115.6	117.2	110.72	-4,702.1	-1,298.6	511.8	297.3	214.50	2.386		
11,800.0	6,693.7	12,022.2	6,875.3	117.9	119.4	110.78	-4,802.1	-1,298.7	512.1	293.3	218.80	2.340		
11,900.0	6,693.0	12,122.2	6,875.2	120.2	121.7	110.84	-4,902.1	-1,298.8	512.3	289.2	223.10	2.296		
12,000.0	6,692.2	12,222.2	6,875.0	122.5	124.0	110.90	-5,002.1	-1,298.9	512.5	285.1	227.40	2.254		
12,100.0	6,691.5	12,322.2	6,874.9	124.8	126.3	110.96	-5,102.1	-1,298.9	512.7	281.0	231.70	2.213		
12,200.0	6,690.7	12,422.2	6,874.8	127.1	128.5	111.02	-5,202.1	-1,299.0	513.0	277.0	236.00	2.174		
12,300.0	6,690.0	12,522.2	6,874.6	129.4	130.8	111.08	-5,302.1	-1,299.1	513.2	272.9	240.30	2.136		
12,400.0	6,689.3	12,622.2	6,874.5	131.7	133.1	111.14	-5,402.1	-1,299.2	513.4	268.8	244.59	2.099		
12,500.0	6,688.5	12,722.2	6,874.3	134.0	135.4	111.20	-5,502.1	-1,299.2	513.6	264.7	248.89	2.064		
12,600.0	6,687.8	12,822.2	6,874.2	136.3	137.7	111.26	-5,602.1	-1,299.3	513.9	260.7	253.18	2.030		
12,700.0	6,687.1	12,922.2	6,874.0	138.7	140.0	111.33	-5,702.1	-1,299.4	514.1	256.6	257.48	1.997		
12,800.0	6,686.3	13,022.2	6,873.9	141.0	142.3	111.39	-5,802.1	-1,299.5	514.3	252.6	261.77	1.965		
12,900.0	6,685.6	13,122.2	6,873.7	143.3	144.6	111.45	-5,902.1	-1,299.5	514.5	248.5	266.05	1.934		
13,000.0	6,684.9	13,222.2	6,873.6	145.6	146.9	111.51	-6,002.1	-1,299.6	514.8	244.4	270.34	1.904		
13,100.0	6,684.1	13,322.2	6,873.4	147.9	149.2	111.57	-6,102.1	-1,299.7	515.0	240.4	274.63	1.875		
13,200.0	6,683.4	13,422.2	6,873.3	150.2	151.5	111.63	-6,202.1	-1,299.8	515.2	236.3	278.91	1.847		

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #2 (1-25-17)										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)			
13,300.0	6,682.6	13,522.2	6,873.1	152.6	153.8	111.69	-6,302.1	-1,299.8	515.5	232.3	283.19	1.820		
13,400.0	6,681.9	13,622.2	6,873.0	154.9	156.1	111.75	-6,402.1	-1,299.9	515.7	228.2	287.47	1.794		
13,500.0	6,681.2	13,722.2	6,872.8	157.2	158.4	111.81	-6,502.1	-1,300.0	515.9	224.2	291.75	1.768		
13,600.0	6,680.4	13,822.2	6,872.7	159.5	160.7	111.87	-6,602.1	-1,300.1	516.2	220.1	296.02	1.744		
13,700.0	6,679.7	13,922.2	6,872.5	161.9	163.0	111.93	-6,702.1	-1,300.1	516.4	216.1	300.30	1.720		
13,800.0	6,679.0	14,022.2	6,872.4	164.2	165.3	111.99	-6,802.1	-1,300.2	516.6	212.1	304.57	1.696		
13,900.0	6,678.2	14,122.2	6,872.3	166.5	167.6	112.05	-6,902.1	-1,300.3	516.9	208.0	308.83	1.674		
14,000.0	6,677.5	14,222.2	6,872.1	168.8	169.9	112.11	-7,002.1	-1,300.4	517.1	204.0	313.10	1.652		
14,067.2	6,677.0	14,289.4	6,872.0	170.4	171.5	112.15	-7,069.3	-1,300.4	517.3	201.3	315.97	1.637 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17)													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	89.98	0.0	15.0		15.0	15.0	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	89.98	0.0	15.0		15.0	14.8	0.28	54.644		
200.0	200.0	200.0	200.0	0.4	0.4	89.98	0.0	15.0		15.0	14.2	0.83	18.215		
300.0	300.0	300.0	300.0	0.7	0.7	89.98	0.0	15.0		15.0	13.7	1.38	10.929		
400.0	400.0	400.0	400.0	1.0	1.0	89.98	0.0	15.0		15.0	13.1	1.93	7.806		
500.0	500.0	500.0	500.0	1.2	1.2	89.98	0.0	15.0		15.0	12.6	2.48	6.072		
600.0	600.0	600.0	600.0	1.5	1.5	89.98	0.0	15.0		15.0	12.0	3.03	4.968		
700.0	700.0	700.0	700.0	1.8	1.8	89.98	0.0	15.0		15.0	11.5	3.58	4.203		
800.0	800.0	800.0	800.0	2.1	2.1	89.98	0.0	15.0		15.0	10.9	4.13	3.643		
900.0	900.0	900.0	900.0	2.3	2.3	89.98	0.0	15.0		15.0	10.4	4.68	3.214		
1,000.0	1,000.0	1,000.0	1,000.0	2.6	2.6	89.98	0.0	15.0		15.0	9.8	5.23	2.876 CC		
1,100.0	1,100.0	1,100.0	1,100.0	2.9	2.9	151.22	0.0	15.0		16.2	10.4	5.77	2.802		
1,200.0	1,199.9	1,199.9	1,199.9	3.1	3.2	156.70	0.0	15.0		19.7	13.4	6.31	3.124		
1,300.0	1,299.7	1,300.3	1,300.3	3.4	3.4	161.09	0.8	14.0		24.7	17.8	6.84	3.609		
1,400.0	1,399.3	1,400.8	1,400.7	3.7	3.7	163.26	3.4	11.0		29.9	22.5	7.36	4.059		
1,500.0	1,498.6	1,501.4	1,501.1	4.0	4.0	164.16	7.6	5.9		35.2	27.3	7.89	4.468		
1,600.0	1,597.5	1,602.2	1,601.4	4.4	4.3	164.27	13.6	-1.2		40.7	32.3	8.41	4.838		
1,700.0	1,696.1	1,703.1	1,701.6	4.7	4.6	163.87	21.2	-10.3		46.3	37.4	8.95	5.173		
1,800.0	1,794.2	1,804.1	1,801.6	5.1	4.9	163.13	30.6	-21.5		52.0	42.5	9.50	5.475		
1,891.1	1,883.1	1,896.2	1,892.4	5.5	5.2	162.24	40.6	-33.5		57.3	47.3	10.02	5.723		
1,900.0	1,891.7	1,905.2	1,901.2	5.6	5.3	162.15	41.7	-34.7		57.9	47.8	10.07	5.743		
2,000.0	1,989.0	2,005.9	2,000.0	6.1	5.7	160.68	54.2	-49.7		62.6	51.9	10.71	5.847		
2,100.0	2,086.3	2,105.8	2,097.9	6.6	6.1	159.25	66.9	-64.9		67.0	55.7	11.37	5.897		
2,200.0	2,183.6	2,205.6	2,195.8	7.1	6.5	158.01	79.7	-80.1		71.5	59.4	12.05	5.931		
2,300.0	2,280.9	2,305.5	2,293.7	7.7	7.0	156.91	92.4	-95.2		76.0	63.2	12.76	5.954		
2,400.0	2,378.2	2,405.4	2,391.6	8.2	7.4	155.93	105.1	-110.4		80.5	67.0	13.49	5.968		
2,500.0	2,475.4	2,505.3	2,489.5	8.8	7.9	155.06	117.8	-125.6		85.0	70.8	14.23	5.974		
2,600.0	2,572.7	2,605.2	2,587.4	9.3	8.4	154.27	130.5	-140.8		89.6	74.6	14.99	5.974		
2,700.0	2,670.0	2,705.1	2,685.3	9.9	8.9	153.56	143.2	-155.9		94.2	78.4	15.77	5.971		
2,800.0	2,767.3	2,805.0	2,783.2	10.5	9.4	152.92	155.9	-171.1		98.7	82.2	16.56	5.964		
2,900.0	2,864.6	2,904.9	2,881.1	11.1	9.9	152.33	168.6	-186.3		103.3	86.0	17.35	5.954		
3,000.0	2,961.9	3,004.8	2,979.0	11.7	10.4	151.80	181.3	-201.5		107.9	89.8	18.16	5.942		
3,100.0	3,059.2	3,104.6	3,076.9	12.2	10.9	151.30	194.1	-216.7		112.5	93.6	18.98	5.930		
3,200.0	3,156.5	3,204.5	3,174.8	12.8	11.4	150.85	206.8	-231.8		117.2	97.4	19.80	5.916		
3,300.0	3,253.8	3,304.4	3,272.7	13.4	11.9	150.43	219.5	-247.0		121.8	101.1	20.64	5.902		
3,400.0	3,351.1	3,404.3	3,370.7	14.0	12.4	150.04	232.2	-262.2		126.4	104.9	21.47	5.887		
3,500.0	3,448.4	3,504.2	3,468.6	14.6	12.9	149.68	244.9	-277.4		131.1	108.7	22.32	5.872		
3,600.0	3,545.6	3,604.1	3,566.5	15.2	13.4	149.35	257.6	-292.6		135.7	112.5	23.17	5.858		
3,700.0	3,642.9	3,704.0	3,664.4	15.8	14.0	149.03	270.3	-307.7		140.3	116.3	24.02	5.843		
3,800.0	3,740.2	3,803.9	3,762.3	16.4	14.5	148.74	283.0	-322.9		145.0	120.1	24.88	5.828		
3,900.0	3,837.5	3,903.8	3,860.2	17.0	15.0	148.46	295.8	-338.1		149.6	123.9	25.74	5.814		
4,000.0	3,934.8	4,003.7	3,958.1	17.6	15.5	148.20	308.5	-353.3		154.3	127.7	26.60	5.800		
4,100.0	4,032.1	4,103.5	4,056.0	18.2	16.0	147.96	321.2	-368.4		159.0	131.5	27.47	5.786		
4,200.0	4,129.4	4,203.4	4,153.9	18.8	16.6	147.73	333.9	-383.6		163.6	135.3	28.34	5.773		
4,300.0	4,226.7	4,303.3	4,251.8	19.4	17.1	147.51	346.6	-398.8		168.3	139.1	29.22	5.760		
4,400.0	4,324.0	4,403.2	4,349.7	20.0	17.6	147.31	359.3	-414.0		173.0	142.9	30.09	5.747		
4,500.0	4,421.3	4,503.1	4,447.6	20.6	18.1	147.11	372.0	-429.2		177.6	146.7	30.97	5.735		
4,600.0	4,518.6	4,603.0	4,545.5	21.2	18.7	146.93	384.7	-444.3		182.3	150.4	31.85	5.723		
4,700.0	4,615.8	4,702.9	4,643.5	21.8	19.2	146.75	397.5	-459.5		187.0	154.2	32.74	5.711		
4,800.0	4,713.1	4,802.8	4,741.4	22.4	19.7	146.59	410.2	-474.7		191.6	158.0	33.62	5.700		
4,900.0	4,810.4	4,902.7	4,839.3	23.0	20.3	146.43	422.9	-489.9		196.3	161.8	34.51	5.689		

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17)													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	4,907.7	5,002.5	4,937.2	23.6	20.8	146.28	435.6	-505.1	201.0	165.6	35.40	5.679			
5,100.0	5,005.0	5,102.4	5,035.1	24.3	21.3	146.13	448.3	-520.2	205.7	169.4	36.29	5.668			
5,200.0	5,102.3	5,201.5	5,132.2	24.9	21.8	145.99	460.9	-535.3	210.4	173.2	37.17	5.659			
5,236.4	5,137.7	5,236.7	5,166.8	25.1	22.0	145.99	465.3	-540.5	212.2	174.8	37.46	5.665			
5,300.0	5,199.7	5,297.0	5,226.0	25.4	22.3	146.09	472.1	-548.6	215.7	177.8	37.93	5.686			
5,400.0	5,297.9	5,391.5	5,319.5	25.8	22.6	146.31	481.1	-559.4	220.8	182.2	38.52	5.731			
5,500.0	5,396.6	5,486.0	5,413.3	26.2	22.9	146.58	488.2	-567.8	225.4	186.3	39.01	5.777			
5,600.0	5,495.8	5,580.3	5,507.3	26.5	23.1	146.91	493.2	-573.9	229.5	190.1	39.40	5.824			
5,700.0	5,595.4	5,674.5	5,601.5	26.7	23.3	147.29	496.3	-577.6	233.1	193.5	39.70	5.873			
5,800.0	5,695.3	5,768.7	5,695.6	26.9	23.5	147.72	497.4	-578.9	236.4	196.5	39.90	5.924			
5,904.7	5,800.0	5,873.1	5,800.0	27.1	23.6	89.13	497.4	-578.9	238.0	197.8	40.14	5.929			
6,000.0	5,895.3	5,968.5	5,895.4	27.2	23.8	89.28	496.8	-578.9	238.0	197.5	40.45	5.883			
6,044.4	5,939.7	6,012.9	5,939.7	27.3	23.8	90.03	493.7	-578.9	237.9	197.6	40.37	5.894			
6,067.8	5,963.1	6,036.1	5,962.7	27.3	23.8	90.67	491.0	-578.9	238.0	197.7	40.25	5.912			
6,100.0	5,995.3	6,067.8	5,994.1	27.4	23.9	-88.38	486.3	-578.9	238.0	198.0	40.03	5.947			
6,150.0	6,045.1	6,116.8	6,042.0	27.4	23.8	-86.85	476.4	-578.9	238.3	198.7	39.64	6.011			
6,200.0	6,094.6	6,165.3	6,088.9	27.4	23.8	-85.35	463.6	-578.9	238.7	199.5	39.22	6.088			
6,250.0	6,143.5	6,213.5	6,134.5	27.4	23.8	-83.88	448.0	-578.9	239.3	200.6	38.76	6.174			
6,300.0	6,191.7	6,261.4	6,178.6	27.4	23.7	-82.45	429.7	-578.9	240.1	201.8	38.30	6.268			
6,350.0	6,238.9	6,308.9	6,221.3	27.3	23.6	-81.06	408.8	-578.9	240.9	203.1	37.83	6.369			
6,400.0	6,284.9	6,356.0	6,262.3	27.3	23.5	-79.72	385.5	-578.9	241.9	204.5	37.36	6.474			
6,450.0	6,329.5	6,402.9	6,301.5	27.2	23.4	-78.43	359.9	-578.9	242.9	206.0	36.91	6.582			
6,500.0	6,372.6	6,450.0	6,339.3	27.1	23.3	-77.19	331.7	-578.9	244.1	207.6	36.47	6.692			
6,550.0	6,413.9	6,495.7	6,374.2	27.0	23.1	-76.04	302.2	-579.0	245.3	209.2	36.07	6.799			
6,600.0	6,453.3	6,541.8	6,407.5	26.9	23.0	-74.94	270.5	-579.0	246.5	210.8	35.70	6.903			
6,650.0	6,490.5	6,587.6	6,438.7	26.7	22.9	-73.91	237.0	-579.0	247.7	212.3	35.38	7.002			
6,700.0	6,525.5	6,633.1	6,467.7	26.6	22.8	-72.96	201.8	-579.0	248.9	213.8	35.10	7.093			
6,750.0	6,558.1	6,678.5	6,494.4	26.5	22.6	-72.07	165.2	-579.0	250.2	215.3	34.87	7.173			
6,800.0	6,588.2	6,723.7	6,518.8	26.4	22.5	-71.26	127.2	-579.1	251.3	216.6	34.71	7.241			
6,850.0	6,615.6	6,768.7	6,540.9	26.3	22.4	-70.52	87.9	-579.1	252.4	217.8	34.62	7.293			
6,900.0	6,640.2	6,813.6	6,560.5	26.2	22.3	-69.87	47.6	-579.1	253.5	218.9	34.60	7.327			
6,950.0	6,661.9	6,858.3	6,577.7	26.1	22.2	-69.28	6.3	-579.1	254.4	219.8	34.66	7.341			
7,000.0	6,680.6	6,902.9	6,592.4	26.0	22.2	-68.78	-35.8	-579.1	255.3	220.5	34.81	7.334			
7,050.0	6,696.2	6,950.0	6,605.2	25.9	22.1	-68.33	-81.1	-579.2	256.0	221.0	35.06	7.302			
7,100.0	6,708.7	6,991.8	6,614.2	25.9	22.1	-68.00	-122.0	-579.2	256.6	221.2	35.40	7.249			
7,150.0	6,718.0	7,036.2	6,621.4	25.9	22.1	-67.73	-165.8	-579.2	257.1	221.3	35.85	7.173			
7,200.0	6,724.0	7,080.5	6,625.9	26.0	22.3	-67.54	-209.8	-579.2	257.5	221.1	36.40	7.074			
7,250.0	6,726.8	7,122.4	6,627.3	26.1	22.5	-67.31	-251.7	-579.3	257.9	221.0	36.97	6.976			
7,273.4	6,727.0	7,147.5	6,627.0	26.2	22.7	-67.20	-275.7	-579.3	258.1	220.8	37.31	6.917			
7,273.4	6,727.0	7,147.5	6,627.0	26.2	22.7	-67.20	-275.7	-579.3	258.1	220.8	37.31	6.917			
7,274.4	6,727.0	7,148.5	6,627.0	26.2	22.7	-67.20	-276.7	-579.3	258.1	220.8	37.33	6.914			
7,300.0	6,726.8	7,174.0	6,626.9	26.3	22.9	-67.23	-302.3	-579.3	258.0	220.3	37.76	6.833			
7,400.0	6,726.1	7,274.0	6,626.8	27.0	23.9	-67.35	-402.3	-579.3	257.8	217.9	39.91	6.460			
7,500.0	6,725.3	7,374.0	6,626.7	27.9	25.2	-67.48	-502.3	-579.4	257.6	215.2	42.41	6.073			
7,600.0	6,724.6	7,474.0	6,626.5	29.0	26.7	-67.60	-602.3	-579.5	257.4	212.1	45.22	5.691			
7,700.0	6,723.9	7,574.0	6,626.4	30.4	28.3	-67.72	-702.3	-579.5	257.1	208.9	48.27	5.327			
7,800.0	6,723.1	7,674.0	6,626.2	31.9	29.9	-67.84	-802.3	-579.6	256.9	205.4	51.53	4.986			
7,900.0	6,722.4	7,774.0	6,626.1	33.5	31.7	-67.96	-902.3	-579.6	256.7	201.7	54.96	4.671			
8,000.0	6,721.7	7,874.0	6,625.9	35.2	33.5	-68.08	-1,002.3	-579.7	256.5	198.0	58.53	4.382			
8,100.0	6,720.9	7,974.0	6,625.8	37.0	35.4	-68.21	-1,102.3	-579.8	256.3	194.0	62.22	4.118			

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17)											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	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)				
8,200.0	6,720.2	8,074.0	6,625.6	38.9	37.4	-68.33	-1,202.3	-579.8	256.0	190.0	66.01	3.879			
8,300.0	6,719.4	8,174.0	6,625.5	40.8	39.3	-68.45	-1,302.3	-579.9	255.8	185.9	69.89	3.661			
8,400.0	6,718.7	8,274.0	6,625.3	42.7	41.4	-68.57	-1,402.3	-579.9	255.6	181.8	73.84	3.462			
8,500.0	6,718.0	8,374.0	6,625.2	44.7	43.4	-68.70	-1,502.3	-580.0	255.4	177.6	77.85	3.281			
8,600.0	6,717.2	8,474.0	6,625.0	46.7	45.5	-68.82	-1,602.3	-580.1	255.2	173.3	81.91	3.115			
8,700.0	6,716.5	8,574.0	6,624.9	48.8	47.6	-68.94	-1,702.3	-580.1	255.0	169.0	86.02	2.964			
8,800.0	6,715.8	8,674.0	6,624.7	50.8	49.7	-69.07	-1,802.3	-580.2	254.8	164.6	90.18	2.825			
8,900.0	6,715.0	8,774.0	6,624.6	52.9	51.9	-69.19	-1,902.3	-580.2	254.6	160.2	94.37	2.697			
9,000.0	6,714.3	8,874.0	6,624.4	55.1	54.0	-69.32	-2,002.3	-580.3	254.4	155.8	98.60	2.580			
9,100.0	6,713.6	8,974.0	6,624.3	57.2	56.2	-69.44	-2,102.3	-580.4	254.1	151.3	102.85	2.471			
9,200.0	6,712.8	9,074.0	6,624.2	59.3	58.4	-69.56	-2,202.3	-580.4	253.9	146.8	107.13	2.370			
9,300.0	6,712.1	9,174.0	6,624.0	61.5	60.6	-69.69	-2,302.3	-580.5	253.7	142.3	111.44	2.277			
9,400.0	6,711.3	9,274.0	6,623.9	63.7	62.8	-69.81	-2,402.3	-580.5	253.5	137.8	115.77	2.190			
9,500.0	6,710.6	9,374.0	6,623.7	65.9	65.0	-69.94	-2,502.3	-580.6	253.3	133.2	120.12	2.109			
9,600.0	6,709.9	9,474.0	6,623.6	68.1	67.2	-70.06	-2,602.3	-580.7	253.1	128.6	124.48	2.033			
9,700.0	6,709.1	9,574.0	6,623.4	70.3	69.5	-70.19	-2,702.3	-580.7	252.9	124.1	128.87	1.963			
9,800.0	6,708.4	9,674.0	6,623.3	72.5	71.7	-70.32	-2,802.3	-580.8	252.7	119.5	133.27	1.896			
9,900.0	6,707.7	9,774.0	6,623.1	74.7	74.0	-70.44	-2,902.3	-580.8	252.5	114.8	137.69	1.834			
10,000.0	6,706.9	9,874.0	6,623.0	76.9	76.2	-70.57	-3,002.3	-580.9	252.3	110.2	142.12	1.776			
10,100.0	6,706.2	9,974.0	6,622.8	79.2	78.5	-70.69	-3,102.3	-581.0	252.1	105.6	146.57	1.720			
10,200.0	6,705.5	10,074.0	6,622.7	81.4	80.7	-70.82	-3,202.3	-581.0	252.0	100.9	151.03	1.668			
10,300.0	6,704.7	10,174.0	6,622.5	83.7	83.0	-70.95	-3,302.3	-581.1	251.8	96.3	155.50	1.619			
10,400.0	6,704.0	10,274.0	6,622.4	85.9	85.3	-71.07	-3,402.3	-581.1	251.6	91.6	159.98	1.572			
10,500.0	6,703.3	10,374.0	6,622.2	88.2	87.6	-71.20	-3,502.3	-581.2	251.4	86.9	164.48	1.528			
10,600.0	6,702.5	10,474.0	6,622.1	90.5	89.8	-71.33	-3,602.3	-581.3	251.2	82.2	168.98	1.487 Level 3			
10,700.0	6,701.8	10,574.0	6,621.9	92.7	92.1	-71.46	-3,702.3	-581.3	251.0	77.5	173.50	1.447 Level 3			
10,800.0	6,701.0	10,674.0	6,621.8	95.0	94.4	-71.58	-3,802.3	-581.4	250.8	72.8	178.02	1.409 Level 3			
10,900.0	6,700.3	10,774.0	6,621.7	97.3	96.7	-71.71	-3,902.3	-581.4	250.6	68.1	182.55	1.373 Level 3			
11,000.0	6,699.6	10,874.0	6,621.5	99.6	99.0	-71.84	-4,002.3	-581.5	250.5	63.4	187.10	1.339 Level 3			
11,100.0	6,698.8	10,974.0	6,621.4	101.8	101.3	-71.97	-4,102.3	-581.5	250.3	58.6	191.65	1.306 Level 3			
11,200.0	6,698.1	11,074.0	6,621.2	104.1	103.6	-72.10	-4,202.3	-581.6	250.1	53.9	196.21	1.275 Level 3			
11,300.0	6,697.4	11,174.0	6,621.1	106.4	105.9	-72.22	-4,302.3	-581.7	249.9	49.1	200.78	1.245 Level 2			
11,400.0	6,696.6	11,274.0	6,620.9	108.7	108.2	-72.35	-4,402.3	-581.7	249.7	44.4	205.35	1.216 Level 2			
11,500.0	6,695.9	11,374.0	6,620.8	111.0	110.5	-72.48	-4,502.3	-581.8	249.6	39.6	209.93	1.189 Level 2			
11,600.0	6,695.2	11,474.0	6,620.6	113.3	112.8	-72.61	-4,602.2	-581.8	249.4	34.9	214.52	1.162 Level 2			
11,700.0	6,694.4	11,574.0	6,620.5	115.6	115.1	-72.74	-4,702.2	-581.9	249.2	30.1	219.12	1.137 Level 2			
11,800.0	6,693.7	11,674.0	6,620.3	117.9	117.4	-72.87	-4,802.2	-582.0	249.0	25.3	223.73	1.113 Level 2			
11,900.0	6,693.0	11,774.0	6,620.2	120.2	119.7	-73.00	-4,902.2	-582.0	248.9	20.5	228.34	1.090 Level 2			
12,000.0	6,692.2	11,874.0	6,620.0	122.5	122.1	-73.13	-5,002.2	-582.1	248.7	15.7	232.95	1.068 Level 2			
12,100.0	6,691.5	11,974.0	6,619.9	124.8	124.4	-73.26	-5,102.2	-582.1	248.5	10.9	237.58	1.046 Level 2			
12,200.0	6,690.7	12,074.0	6,619.7	127.1	126.7	-73.39	-5,202.2	-582.2	248.4	6.1	242.21	1.025 Level 2			
12,300.0	6,690.0	12,174.0	6,619.6	129.4	129.0	-73.52	-5,302.2	-582.3	248.2	1.3	246.85	1.005 Level 2			
12,400.0	6,689.3	12,274.0	6,619.4	131.7	131.3	-73.65	-5,402.2	-582.3	248.0	-3.5	251.49	0.986 Level 1			
12,500.0	6,688.5	12,374.0	6,619.3	134.0	133.6	-73.78	-5,502.2	-582.4	247.9	-8.3	256.14	0.968 Level 1			
12,600.0	6,687.8	12,474.0	6,619.2	136.3	136.0	-73.91	-5,602.2	-582.4	247.7	-13.1	260.79	0.950 Level 1			
12,700.0	6,687.1	12,574.0	6,619.0	138.7	138.3	-74.04	-5,702.2	-582.5	247.5	-17.9	265.45	0.933 Level 1			
12,800.0	6,686.3	12,673.9	6,618.9	141.0	140.6	-74.17	-5,802.2	-582.6	247.4	-22.7	270.11	0.916 Level 1			
12,900.0	6,685.6	12,773.9	6,618.7	143.3	142.9	-74.30	-5,902.2	-582.6	247.2	-27.6	274.78	0.900 Level 1			
13,000.0	6,684.9	12,873.9	6,618.6	145.6	145.3	-74.44	-6,002.2	-582.7	247.1	-32.4	279.46	0.884 Level 1			
13,100.0	6,684.1	12,973.9	6,618.4	147.9	147.6	-74.57	-6,102.2	-582.7	246.9	-37.2	284.14	0.869 Level 1			
13,200.0	6,683.4	13,073.9	6,618.3	150.2	149.9	-74.70	-6,202.2	-582.8	246.7	-42.1	288.83	0.854 Level 1			

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #2 (1-25-17)														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
13,300.0	6,682.6	13,173.9	6,618.1	152.6	152.2	-74.83	-6,302.2	-582.9	246.6	-46.9	293.52	0.840	Level 1		
13,400.0	6,681.9	13,273.9	6,618.0	154.9	154.6	-74.96	-6,402.2	-582.9	246.4	-51.8	298.21	0.826	Level 1		
13,500.0	6,681.2	13,373.9	6,617.8	157.2	156.9	-75.10	-6,502.2	-583.0	246.3	-56.6	302.91	0.813	Level 1		
13,600.0	6,680.4	13,473.9	6,617.7	159.5	159.2	-75.23	-6,602.2	-583.0	246.1	-61.5	307.61	0.800	Level 1		
13,700.0	6,679.7	13,573.9	6,617.5	161.9	161.5	-75.36	-6,702.2	-583.1	246.0	-66.3	312.32	0.788	Level 1		
13,800.0	6,679.0	13,673.9	6,617.4	164.2	163.9	-75.49	-6,802.2	-583.2	245.8	-71.2	317.04	0.775	Level 1		
13,900.0	6,678.2	13,773.9	6,617.2	166.5	166.2	-75.63	-6,902.2	-583.2	245.7	-76.1	321.75	0.764	Level 1		
14,000.0	6,677.5	13,873.9	6,617.1	168.8	168.5	-75.76	-7,002.2	-583.3	245.6	-80.9	326.47	0.752	Level 1		
14,049.1	6,677.1	13,923.0	6,617.0	170.0	169.7	-75.83	-7,051.3	-583.3	245.5	-83.3	328.79	0.747	Level 1		
14,067.2	6,677.0	13,938.9	6,617.0	170.4	170.1	-75.85	-7,067.2	-583.3	245.5	-84.1	329.60	0.745	Level 1, ES, SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-203 - Wellbore #1 - Plan #2 (1-25-17)											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	90.46	-0.4	44.9	44.9						
100.0	100.0	100.0	100.0	0.1	0.1	90.46	-0.4	44.9	44.9	44.6	0.28	162.925			
200.0	200.0	200.0	200.0	0.4	0.4	90.46	-0.4	44.9	44.9	44.0	0.83	54.308			
300.0	300.0	300.0	300.0	0.7	0.7	90.46	-0.4	44.9	44.9	43.5	1.38	32.585			
400.0	400.0	400.0	400.0	1.0	1.0	90.46	-0.4	44.9	44.9	42.9	1.93	23.275			
500.0	500.0	500.0	500.0	1.2	1.2	90.46	-0.4	44.9	44.9	42.4	2.48	18.103			
600.0	600.0	600.0	600.0	1.5	1.5	90.46	-0.4	44.9	44.9	41.8	3.03	14.811			
700.0	700.0	700.0	700.0	1.8	1.8	90.46	-0.4	44.9	44.9	41.3	3.58	12.533			
800.0	800.0	800.0	800.0	2.1	2.1	90.46	-0.4	44.9	44.9	40.7	4.13	10.862			
900.0	900.0	900.0	900.0	2.3	2.3	90.46	-0.4	44.9	44.9	40.2	4.68	9.584			
1,000.0	1,000.0	1,000.0	1,000.0	2.6	2.6	90.46	-0.4	44.9	44.9	39.6	5.23	8.575	CC, ES		
1,100.0	1,100.0	1,100.0	1,100.0	2.9	2.9	150.13	-0.4	44.9	46.0	40.2	5.77	7.965			
1,200.0	1,199.9	1,199.9	1,199.9	3.1	3.2	152.37	-0.4	44.9	49.4	43.1	6.31	7.835			
1,300.0	1,299.7	1,299.7	1,299.7	3.4	3.4	155.48	-0.4	44.9	55.3	48.5	6.85	8.080			
1,400.0	1,399.3	1,399.3	1,399.3	3.7	3.7	158.84	-0.4	44.9	63.8	56.4	7.38	8.638			
1,500.0	1,498.6	1,498.6	1,498.6	4.0	4.0	162.04	-0.4	44.9	74.8	66.9	7.91	9.457			
1,600.0	1,597.5	1,597.5	1,597.5	4.4	4.3	164.85	-0.4	44.9	88.6	80.2	8.44	10.494			
1,700.0	1,696.1	1,696.1	1,696.1	4.7	4.5	167.20	-0.4	44.9	105.1	96.1	8.97	11.711			
1,800.0	1,794.2	1,794.2	1,794.2	5.1	4.8	169.14	-0.4	44.9	124.2	114.7	9.49	13.078			
1,891.1	1,883.1	1,883.1	1,883.1	5.5	5.0	170.59	-0.4	44.9	143.9	133.9	9.97	14.433			
1,900.0	1,891.7	1,891.7	1,891.7	5.6	5.1	170.72	-0.4	44.9	145.9	135.9	10.02	14.565			
2,000.0	1,989.0	1,989.0	1,989.0	6.1	5.3	171.99	-0.4	44.9	168.8	158.2	10.57	15.963			
2,100.0	2,086.3	2,089.2	2,089.2	6.6	5.6	172.74	0.6	44.6	191.1	179.9	11.14	17.150			
2,200.0	2,183.6	2,190.6	2,190.5	7.1	5.9	172.78	4.2	43.5	211.7	199.9	11.71	18.071			
2,300.0	2,280.9	2,292.6	2,292.3	7.7	6.2	172.30	10.4	41.6	230.5	218.3	12.29	18.752			
2,400.0	2,378.2	2,395.2	2,394.5	8.2	6.5	171.40	19.2	38.9	247.8	234.9	12.89	19.222			
2,500.0	2,475.4	2,498.2	2,496.8	8.8	6.8	170.14	30.7	35.4	263.4	249.9	13.50	19.503			
2,600.0	2,572.7	2,601.1	2,598.6	9.3	7.1	168.58	44.8	31.2	277.5	263.3	14.14	19.620			
2,700.0	2,670.0	2,699.9	2,696.2	9.9	7.4	167.03	59.5	26.7	291.1	276.3	14.80	19.672			
2,800.0	2,767.3	2,798.7	2,793.8	10.5	7.7	165.63	74.1	22.3	304.8	289.4	15.47	19.706			
2,900.0	2,864.6	2,897.4	2,891.4	11.1	8.1	164.34	88.8	17.8	318.8	302.6	16.16	19.724			
3,000.0	2,961.9	2,996.2	2,989.0	11.7	8.4	163.17	103.4	13.4	332.9	316.0	16.87	19.730			
3,100.0	3,059.2	3,095.0	3,086.6	12.2	8.8	162.08	118.1	8.9	347.1	329.5	17.60	19.725			
3,200.0	3,156.5	3,193.8	3,184.1	12.8	9.1	161.09	132.8	4.5	361.4	343.1	18.34	19.711			
3,300.0	3,253.8	3,292.6	3,281.7	13.4	9.5	160.17	147.4	0.0	375.9	356.8	19.09	19.689			
3,400.0	3,351.1	3,391.3	3,379.3	14.0	9.9	159.32	162.1	-4.4	390.4	370.5	19.85	19.662			
3,500.0	3,448.4	3,490.1	3,476.9	14.6	10.3	158.53	176.7	-8.9	405.0	384.3	20.63	19.630			
3,600.0	3,545.6	3,588.9	3,574.5	15.2	10.6	157.79	191.4	-13.3	419.6	398.2	21.42	19.595			
3,700.0	3,642.9	3,687.7	3,672.1	15.8	11.0	157.10	206.0	-17.8	434.4	412.2	22.21	19.558			
3,800.0	3,740.2	3,786.5	3,769.6	16.4	11.4	156.46	220.7	-22.2	449.2	426.1	23.01	19.519			
3,900.0	3,837.5	3,885.2	3,867.2	17.0	11.8	155.86	235.4	-26.7	464.0	440.2	23.82	19.478			
4,000.0	3,934.8	3,984.0	3,964.8	17.6	12.2	155.30	250.0	-31.1	478.9	454.2	24.64	19.437			
4,100.0	4,032.1	4,082.8	4,062.4	18.2	12.6	154.77	264.7	-35.5	493.8	468.3	25.46	19.395			
4,200.0	4,129.4	4,181.6	4,160.0	18.8	13.0	154.27	279.3	-40.0	508.8	482.5	26.29	19.354			
4,300.0	4,226.7	4,280.4	4,257.6	19.4	13.4	153.80	294.0	-44.4	523.8	496.7	27.12	19.312			
4,400.0	4,324.0	4,379.1	4,355.2	20.0	13.8	153.36	308.7	-48.9	538.8	510.9	27.96	19.271			
4,500.0	4,421.3	4,477.9	4,452.7	20.6	14.3	152.94	323.3	-53.3	553.9	525.1	28.80	19.231			
4,600.0	4,518.6	4,576.7	4,550.3	21.2	14.7	152.54	338.0	-57.8	569.0	539.3	29.65	19.191			
4,700.0	4,615.8	4,675.5	4,647.9	21.8	15.1	152.17	352.6	-62.2	584.1	553.6	30.50	19.152			
4,800.0	4,713.1	4,774.3	4,745.5	22.4	15.5	151.81	367.3	-66.7	599.2	567.9	31.35	19.114			
4,900.0	4,810.4	4,873.0	4,843.1	23.0	15.9	151.47	381.9	-71.1	614.4	582.2	32.21	19.077			

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-203 - Wellbore #1 - Plan #2 (1-25-17)													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	4,907.7	4,971.8	4,940.7	23.6	16.3	151.14	396.6	-75.6	629.6	596.5	33.06	19.041			
5,100.0	5,005.0	5,070.6	5,038.2	24.3	16.8	150.84	411.3	-80.0	644.8	610.8	33.93	19.005			
5,200.0	5,102.3	5,169.4	5,135.8	24.9	17.2	150.54	425.9	-84.5	660.0	625.2	34.79	18.971			
5,236.4	5,137.7	5,205.3	5,171.3	25.1	17.3	150.44	431.3	-86.1	665.5	630.4	35.10	18.959			
5,300.0	5,199.7	5,268.2	5,233.5	25.4	17.6	150.32	440.6	-88.9	674.6	638.9	35.68	18.907			
5,400.0	5,297.9	5,367.4	5,331.4	25.8	18.0	150.01	455.3	-93.4	686.5	649.9	36.54	18.786			
5,500.0	5,396.6	5,466.8	5,429.6	26.2	18.4	149.53	470.1	-97.8	695.4	658.0	37.38	18.601			
5,600.0	5,495.8	5,560.6	5,522.5	26.5	18.8	149.02	483.0	-101.8	701.7	663.6	38.09	18.422			
5,700.0	5,595.4	5,653.6	5,614.9	26.7	19.0	148.60	493.0	-104.8	706.0	667.3	38.68	18.254			
5,800.0	5,695.3	5,747.0	5,707.9	26.9	19.3	148.26	500.1	-107.0	708.4	669.2	39.17	18.085			
5,904.7	5,800.0	5,844.9	5,805.8	27.1	19.5	89.14	504.5	-108.3	708.6	669.0	39.58	17.904			
6,000.0	5,895.3	5,934.4	5,895.3	27.2	19.7	89.04	505.6	-108.6	708.3	668.3	39.95	17.728			
6,067.8	5,963.1	6,002.5	5,963.4	27.3	19.8	89.06	505.4	-108.6	708.3	668.0	40.21	17.613			
6,100.0	5,995.3	6,035.2	5,996.0	27.4	19.9	-90.90	503.8	-108.6	708.2	668.0	40.29	17.580			
6,150.0	6,045.1	6,085.9	6,046.4	27.4	19.9	-90.78	498.6	-108.6	708.2	667.9	40.35	17.553			
6,200.0	6,094.6	6,136.5	6,096.3	27.4	19.9	-90.67	490.1	-108.7	708.2	667.9	40.34	17.555			
6,250.0	6,143.5	6,187.0	6,145.4	27.4	19.9	-90.55	478.4	-108.7	708.2	667.9	40.27	17.586			
6,300.0	6,191.7	6,237.4	6,193.5	27.4	19.8	-90.43	463.4	-108.7	708.2	668.0	40.14	17.641			
6,350.0	6,238.9	6,287.6	6,240.4	27.3	19.7	-90.31	445.4	-108.7	708.1	668.2	39.97	17.719			
6,400.0	6,284.9	6,337.8	6,286.0	27.3	19.6	-90.19	424.4	-108.7	708.1	668.4	39.75	17.814			
6,450.0	6,329.5	6,387.9	6,330.0	27.2	19.5	-90.06	400.4	-108.7	708.1	668.6	39.51	17.923			
6,500.0	6,372.6	6,437.9	6,372.2	27.1	19.4	-89.94	373.7	-108.7	708.1	668.9	39.25	18.041			
6,550.0	6,413.9	6,487.8	6,412.5	27.0	19.3	-89.81	344.4	-108.8	708.1	669.1	38.99	18.162			
6,586.7	6,443.0	6,524.4	6,440.9	26.9	19.2	-89.72	321.2	-108.8	708.1	669.3	38.80	18.248			
6,600.0	6,453.3	6,537.6	6,450.8	26.9	19.1	-89.69	312.5	-108.8	708.1	669.4	38.74	18.279			
6,650.0	6,490.5	6,587.3	6,486.8	26.7	19.0	-89.57	278.3	-108.8	708.1	669.6	38.52	18.385			
6,700.0	6,525.5	6,636.9	6,520.5	26.6	18.9	-89.45	241.9	-108.8	708.1	669.8	38.34	18.472			
6,750.0	6,558.1	6,686.4	6,551.7	26.5	18.8	-89.33	203.5	-108.9	708.1	669.9	38.21	18.533			
6,800.0	6,588.2	6,735.8	6,580.2	26.4	18.8	-89.22	163.2	-108.9	708.1	670.0	38.15	18.560			
6,850.0	6,615.6	6,785.1	6,606.1	26.3	18.8	-89.11	121.2	-108.9	708.1	670.0	38.18	18.547			
6,900.0	6,640.2	6,834.3	6,629.2	26.2	18.8	-89.00	77.7	-109.0	708.2	669.9	38.30	18.489			
6,950.0	6,661.9	6,883.5	6,649.3	26.1	18.9	-88.90	32.9	-109.0	708.2	669.6	38.53	18.382			
7,000.0	6,680.6	6,932.5	6,666.6	26.0	19.0	-88.80	-13.1	-109.0	708.2	669.3	38.86	18.225			
7,050.0	6,696.2	6,981.5	6,680.8	25.9	19.2	-88.71	-59.9	-109.1	708.2	668.9	39.30	18.019			
7,100.0	6,708.7	7,030.5	6,692.0	25.9	19.5	-88.62	-107.6	-109.1	708.2	668.4	39.86	17.766			
7,150.0	6,718.0	7,079.4	6,700.1	25.9	19.9	-88.54	-155.8	-109.1	708.2	667.7	40.53	17.473			
7,200.0	6,724.0	7,128.2	6,705.1	26.0	20.3	-88.47	-204.3	-109.2	708.2	666.9	41.31	17.144			
7,250.0	6,726.8	7,176.9	6,707.0	26.1	20.8	-88.40	-253.0	-109.2	708.3	666.1	42.19	16.789			
7,273.4	6,727.0	7,200.1	6,706.9	26.2	21.0	-88.38	-276.2	-109.2	708.3	665.7	42.59	16.628			
7,273.4	6,727.0	7,200.1	6,706.9	26.2	21.0	-88.38	-276.2	-109.2	708.3	665.7	42.59	16.628			
7,274.4	6,727.0	7,201.1	6,706.9	26.2	21.0	-88.38	-277.2	-109.2	708.3	665.6	42.61	16.621			
7,300.0	6,726.8	7,226.7	6,706.7	26.3	21.3	-88.38	-302.8	-109.3	708.3	665.1	43.12	16.426			
7,400.0	6,726.1	7,326.7	6,706.1	27.0	22.5	-88.38	-402.8	-109.3	708.2	662.8	45.41	15.596			
7,500.0	6,725.3	7,426.7	6,705.4	27.9	23.8	-88.39	-502.8	-109.4	708.2	660.2	48.06	14.737			
7,600.0	6,724.6	7,526.7	6,704.8	29.0	25.3	-88.39	-602.7	-109.5	708.2	657.2	51.00	13.887			
7,700.0	6,723.9	7,626.7	6,704.1	30.4	27.0	-88.40	-702.7	-109.6	708.2	654.0	54.19	13.069			
7,800.0	6,723.1	7,726.7	6,703.4	31.9	28.7	-88.41	-802.7	-109.6	708.2	650.6	57.59	12.297			
7,900.0	6,722.4	7,826.7	6,702.8	33.5	30.5	-88.41	-902.7	-109.7	708.1	647.0	61.16	11.579			
8,000.0	6,721.7	7,926.7	6,702.1	35.2	32.4	-88.42	-1,002.7	-109.8	708.1	643.2	64.87	10.916			
8,100.0	6,720.9	8,026.7	6,701.4	37.0	34.3	-88.42	-1,102.7	-109.9	708.1	639.4	68.71	10.306			

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-203 - Wellbore #1 - Plan #2 (1-25-17)													Offset Site Error: 0.0 ft			
Survey Program: 0-MWD															Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
8,200.0	6,720.2	8,126.7	6,700.8	38.9	36.3	-88.43	-1,202.7	-110.0	708.1	635.4	72.65	9.747				
8,300.0	6,719.4	8,226.7	6,700.1	40.8	38.3	-88.44	-1,302.7	-110.0	708.1	631.4	76.67	9.235				
8,400.0	6,718.7	8,326.7	6,699.5	42.7	40.4	-88.44	-1,402.7	-110.1	708.0	627.3	80.77	8.766				
8,500.0	6,718.0	8,426.7	6,698.8	44.7	42.5	-88.45	-1,502.7	-110.2	708.0	623.1	84.93	8.337				
8,600.0	6,717.2	8,526.7	6,698.1	46.7	44.6	-88.45	-1,602.7	-110.3	708.0	618.9	89.14	7.942				
8,700.0	6,716.5	8,626.7	6,697.5	48.8	46.8	-88.46	-1,702.7	-110.3	708.0	614.6	93.40	7.580				
8,800.0	6,715.8	8,726.7	6,696.8	50.8	48.9	-88.47	-1,802.7	-110.4	708.0	610.3	97.70	7.246				
8,900.0	6,715.0	8,826.7	6,696.1	52.9	51.1	-88.47	-1,902.7	-110.5	707.9	605.9	102.04	6.938				
9,000.0	6,714.3	8,926.7	6,695.5	55.1	53.3	-88.48	-2,002.7	-110.6	707.9	601.5	106.40	6.653				
9,100.0	6,713.6	9,026.7	6,694.8	57.2	55.5	-88.48	-2,102.7	-110.7	707.9	597.1	110.80	6.389				
9,200.0	6,712.8	9,126.7	6,694.2	59.3	57.7	-88.49	-2,202.7	-110.7	707.9	592.7	115.22	6.144				
9,300.0	6,712.1	9,226.7	6,693.5	61.5	59.9	-88.50	-2,302.7	-110.8	707.9	588.2	119.66	5.916				
9,400.0	6,711.3	9,326.7	6,692.8	63.7	62.2	-88.50	-2,402.7	-110.9	707.8	583.7	124.12	5.703				
9,500.0	6,710.6	9,426.7	6,692.2	65.9	64.4	-88.51	-2,502.7	-111.0	707.8	579.2	128.59	5.504				
9,600.0	6,709.9	9,526.7	6,691.5	68.1	66.7	-88.51	-2,602.7	-111.1	707.8	574.7	133.09	5.318				
9,700.0	6,709.1	9,626.7	6,690.9	70.3	68.9	-88.52	-2,702.7	-111.1	707.8	570.2	137.59	5.144				
9,800.0	6,708.4	9,726.7	6,690.2	72.5	71.2	-88.53	-2,802.7	-111.2	707.8	565.7	142.11	4.980				
9,900.0	6,707.7	9,826.7	6,689.5	74.7	73.4	-88.53	-2,902.7	-111.3	707.7	561.1	146.64	4.826				
10,000.0	6,706.9	9,926.7	6,688.9	76.9	75.7	-88.54	-3,002.7	-111.4	707.7	556.5	151.18	4.681				
10,100.0	6,706.2	10,026.7	6,688.2	79.2	78.0	-88.54	-3,102.7	-111.4	707.7	552.0	155.73	4.544				
10,200.0	6,705.5	10,126.7	6,687.5	81.4	80.3	-88.55	-3,202.7	-111.5	707.7	547.4	160.29	4.415				
10,300.0	6,704.7	10,226.7	6,686.9	83.7	82.6	-88.56	-3,302.7	-111.6	707.7	542.8	164.86	4.293				
10,400.0	6,704.0	10,326.7	6,686.2	85.9	84.9	-88.56	-3,402.7	-111.7	707.6	538.2	169.43	4.177				
10,500.0	6,703.3	10,426.7	6,685.6	88.2	87.2	-88.57	-3,502.7	-111.8	707.6	533.6	174.01	4.066				
10,600.0	6,702.5	10,526.7	6,684.9	90.5	89.4	-88.57	-3,602.7	-111.8	707.6	529.0	178.60	3.962				
10,700.0	6,701.8	10,626.7	6,684.2	92.7	91.7	-88.58	-3,702.7	-111.9	707.6	524.4	183.20	3.862				
10,800.0	6,701.0	10,726.7	6,683.6	95.0	94.0	-88.59	-3,802.7	-112.0	707.6	519.8	187.79	3.768				
10,900.0	6,700.3	10,826.7	6,682.9	97.3	96.4	-88.59	-3,902.7	-112.1	707.6	515.2	192.40	3.678				
11,000.0	6,699.6	10,926.7	6,682.3	99.6	98.7	-88.60	-4,002.7	-112.1	707.5	510.5	197.01	3.591				
11,100.0	6,698.8	11,026.7	6,681.6	101.8	101.0	-88.60	-4,102.7	-112.2	707.5	505.9	201.62	3.509				
11,200.0	6,698.1	11,126.7	6,680.9	104.1	103.3	-88.61	-4,202.7	-112.3	707.5	501.3	206.24	3.431				
11,300.0	6,697.4	11,226.7	6,680.3	106.4	105.6	-88.62	-4,302.7	-112.4	707.5	496.6	210.86	3.355				
11,400.0	6,696.6	11,326.7	6,679.6	108.7	107.9	-88.62	-4,402.7	-112.5	707.5	492.0	215.48	3.283				
11,500.0	6,695.9	11,426.7	6,678.9	111.0	110.2	-88.63	-4,502.7	-112.5	707.4	487.3	220.11	3.214				
11,600.0	6,695.2	11,526.7	6,678.3	113.3	112.5	-88.63	-4,602.7	-112.6	707.4	482.7	224.74	3.148				
11,700.0	6,694.4	11,626.7	6,677.6	115.6	114.9	-88.64	-4,702.7	-112.7	707.4	478.0	229.37	3.084				
11,800.0	6,693.7	11,726.7	6,677.0	117.9	117.2	-88.64	-4,802.7	-112.8	707.4	473.4	234.01	3.023				
11,900.0	6,693.0	11,826.7	6,676.3	120.2	119.5	-88.65	-4,902.7	-112.9	707.4	468.7	238.64	2.964				
12,000.0	6,692.2	11,926.7	6,675.6	122.5	121.8	-88.66	-5,002.7	-112.9	707.3	464.1	243.29	2.907				
12,100.0	6,691.5	12,026.7	6,675.0	124.8	124.1	-88.66	-5,102.6	-113.0	707.3	459.4	247.93	2.853				
12,200.0	6,690.7	12,126.7	6,674.3	127.1	126.5	-88.67	-5,202.6	-113.1	707.3	454.7	252.57	2.800				
12,300.0	6,690.0	12,226.7	6,673.6	129.4	128.8	-88.67	-5,302.6	-113.2	707.3	450.1	257.22	2.750				
12,400.0	6,689.3	12,326.7	6,673.0	131.7	131.1	-88.68	-5,402.6	-113.2	707.3	445.4	261.87	2.701				
12,500.0	6,688.5	12,426.7	6,672.3	134.0	133.4	-88.69	-5,502.6	-113.3	707.2	440.7	266.52	2.654				
12,600.0	6,687.8	12,526.7	6,671.7	136.3	135.8	-88.69	-5,602.6	-113.4	707.2	436.0	271.18	2.608				
12,700.0	6,687.1	12,626.7	6,671.0	138.7	138.1	-88.70	-5,702.6	-113.5	707.2	431.4	275.83	2.564				
12,800.0	6,686.3	12,726.7	6,670.3	141.0	140.4	-88.70	-5,802.6	-113.6	707.2	426.7	280.49	2.521				
12,900.0	6,685.6	12,826.7	6,669.7	143.3	142.8	-88.71	-5,902.6	-113.6	707.2	422.0	285.15	2.480				
13,000.0	6,684.9	12,926.7	6,669.0	145.6	145.1	-88.72	-6,002.6	-113.7	707.1	417.3	289.80	2.440				
13,100.0	6,684.1	13,026.7	6,668.4	147.9	147.4	-88.72	-6,102.6	-113.8	707.1	412.7	294.47	2.401				
13,200.0	6,683.4	13,126.7	6,667.7	150.2	149.7	-88.73	-6,202.6	-113.9	707.1	408.0	299.13	2.364				

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-203 - Wellbore #1 - Plan #2 (1-25-17)													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		
13,300.0	6,682.6	13,226.7	6,667.0	152.6	152.1	-88.73	-6,302.6	-114.0	707.1	403.3	303.79	2.328		
13,400.0	6,681.9	13,326.7	6,666.4	154.9	154.4	-88.74	-6,402.6	-114.0	707.1	398.6	308.45	2.292		
13,500.0	6,681.2	13,426.7	6,665.7	157.2	156.7	-88.75	-6,502.6	-114.1	707.0	393.9	313.12	2.258		
13,600.0	6,680.4	13,526.7	6,665.0	159.5	159.1	-88.75	-6,602.6	-114.2	707.0	389.2	317.79	2.225		
13,700.0	6,679.7	13,626.7	6,664.4	161.9	161.4	-88.76	-6,702.6	-114.3	707.0	384.6	322.45	2.193		
13,800.0	6,679.0	13,726.7	6,663.7	164.2	163.7	-88.76	-6,802.6	-114.3	707.0	379.9	327.12	2.161		
13,900.0	6,678.2	13,826.7	6,663.1	166.5	166.1	-88.77	-6,902.6	-114.4	707.0	375.2	331.79	2.131		
14,000.0	6,677.5	13,926.7	6,662.4	168.8	168.4	-88.78	-7,002.6	-114.5	707.0	370.5	336.46	2.101		
14,047.8	6,677.1	13,974.5	6,662.1	169.9	169.5	-88.78	-7,050.4	-114.5	706.9	368.2	338.70	2.087		
14,067.2	6,677.0	13,986.6	6,662.0	170.4	169.8	-88.78	-7,062.5	-114.5	707.0	367.5	339.43	2.083 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17)											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	90.01	0.0	30.1	30.1						
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	30.1	30.1	29.8	0.28	109.288			
200.0	200.0	200.0	200.0	0.4	0.4	90.01	0.0	30.1	30.1	29.3	0.83	36.429			
300.0	300.0	300.0	300.0	0.7	0.7	90.01	0.0	30.1	30.1	28.7	1.38	21.858			
400.0	400.0	400.0	400.0	1.0	1.0	90.01	0.0	30.1	30.1	28.2	1.93	15.613			
500.0	500.0	500.0	500.0	1.2	1.2	90.01	0.0	30.1	30.1	27.6	2.48	12.143			
600.0	600.0	600.0	600.0	1.5	1.5	90.01	0.0	30.1	30.1	27.1	3.03	9.935			
700.0	700.0	700.0	700.0	1.8	1.8	90.01	0.0	30.1	30.1	26.5	3.58	8.407			
800.0	800.0	800.0	800.0	2.1	2.1	90.01	0.0	30.1	30.1	26.0	4.13	7.286			
900.0	900.0	900.0	900.0	2.3	2.3	90.01	0.0	30.1	30.1	25.4	4.68	6.429			
1,000.0	1,000.0	1,000.0	1,000.0	2.6	2.6	90.01	0.0	30.1	30.1	24.9	5.23	5.752 CC, ES			
1,100.0	1,100.0	1,100.0	1,100.0	2.9	2.9	150.09	0.0	30.1	31.2	25.4	5.77	5.407			
1,200.0	1,199.9	1,199.9	1,199.9	3.1	3.2	153.30	0.0	30.1	34.7	28.4	6.31	5.496			
1,300.0	1,299.7	1,299.7	1,299.7	3.4	3.4	157.41	0.0	30.1	40.6	33.8	6.85	5.935			
1,400.0	1,399.3	1,399.3	1,399.3	3.7	3.7	161.46	0.0	30.1	49.2	41.8	7.38	6.667			
1,500.0	1,498.6	1,499.8	1,499.8	4.0	4.0	164.25	1.0	29.3	59.4	51.5	7.91	7.515			
1,600.0	1,597.5	1,600.6	1,600.5	4.4	4.3	165.45	4.2	26.9	70.2	61.7	8.43	8.321			
1,700.0	1,696.1	1,701.6	1,701.3	4.7	4.5	165.68	9.5	22.9	81.3	72.4	8.96	9.076			
1,800.0	1,794.2	1,802.8	1,802.0	5.1	4.8	165.27	16.9	17.3	92.9	83.4	9.50	9.781			
1,891.1	1,883.1	1,895.2	1,893.8	5.5	5.1	164.52	25.6	10.8	103.8	93.8	10.00	10.382			
1,900.0	1,891.7	1,904.2	1,902.7	5.6	5.1	164.44	26.5	10.1	104.8	94.8	10.05	10.434			
2,000.0	1,989.0	2,005.9	2,003.3	6.1	5.5	163.14	38.3	1.2	115.8	105.1	10.65	10.865			
2,100.0	2,086.3	2,105.6	2,101.7	6.6	5.8	161.63	51.1	-8.4	125.5	114.2	11.29	11.119			
2,200.0	2,183.6	2,205.0	2,199.9	7.1	6.2	160.34	63.8	-18.0	135.3	123.4	11.94	11.332			
2,300.0	2,280.9	2,304.5	2,298.1	7.7	6.5	159.22	76.6	-27.6	145.2	132.6	12.62	11.508			
2,400.0	2,378.2	2,404.0	2,396.3	8.2	6.9	158.25	89.3	-37.2	155.1	141.8	13.31	11.654			
2,500.0	2,475.4	2,503.5	2,494.5	8.8	7.3	157.39	102.1	-46.9	165.1	151.0	14.02	11.775			
2,600.0	2,572.7	2,602.9	2,592.7	9.3	7.7	156.63	114.9	-56.5	175.0	160.3	14.74	11.876			
2,700.0	2,670.0	2,702.4	2,690.8	9.9	8.1	155.95	127.6	-66.1	185.1	169.6	15.48	11.959			
2,800.0	2,767.3	2,801.9	2,789.0	10.5	8.5	155.35	140.4	-75.7	195.1	178.9	16.22	12.028			
2,900.0	2,864.6	2,901.4	2,887.2	11.1	8.9	154.80	153.1	-85.3	205.2	188.2	16.98	12.085			
3,000.0	2,961.9	3,000.8	2,985.4	11.7	9.3	154.30	165.9	-94.9	215.2	197.5	17.74	12.132			
3,100.0	3,059.2	3,100.3	3,083.6	12.2	9.8	153.85	178.7	-104.6	225.3	206.8	18.51	12.171			
3,200.0	3,156.5	3,199.8	3,181.8	12.8	10.2	153.44	191.4	-114.2	235.4	216.1	19.29	12.203			
3,300.0	3,253.8	3,299.3	3,279.9	13.4	10.6	153.06	204.2	-123.8	245.6	225.5	20.08	12.230			
3,400.0	3,351.1	3,398.7	3,378.1	14.0	11.0	152.71	216.9	-133.4	255.7	234.8	20.87	12.252			
3,500.0	3,448.4	3,498.2	3,476.3	14.6	11.5	152.38	229.7	-143.0	265.8	244.1	21.66	12.269			
3,600.0	3,545.6	3,597.7	3,574.5	15.2	11.9	152.08	242.5	-152.6	276.0	253.5	22.46	12.284			
3,700.0	3,642.9	3,697.2	3,672.7	15.8	12.3	151.81	255.2	-162.2	286.1	262.8	23.27	12.295			
3,800.0	3,740.2	3,796.6	3,770.9	16.4	12.8	151.55	268.0	-171.9	296.3	272.2	24.08	12.305			
3,900.0	3,837.5	3,896.1	3,869.0	17.0	13.2	151.31	280.7	-181.5	306.4	281.5	24.89	12.312			
4,000.0	3,934.8	3,995.6	3,967.2	17.6	13.7	151.08	293.5	-191.1	316.6	290.9	25.70	12.317			
4,100.0	4,032.1	4,095.1	4,065.4	18.2	14.1	150.87	306.3	-200.7	326.8	300.2	26.52	12.321			
4,200.0	4,129.4	4,194.5	4,163.6	18.8	14.5	150.67	319.0	-210.3	336.9	309.6	27.34	12.324			
4,300.0	4,226.7	4,294.0	4,261.8	19.4	15.0	150.48	331.8	-219.9	347.1	318.9	28.16	12.326			
4,400.0	4,324.0	4,393.5	4,360.0	20.0	15.4	150.30	344.5	-229.6	357.3	328.3	28.98	12.327			
4,500.0	4,421.3	4,493.0	4,458.1	20.6	15.9	150.14	357.3	-239.2	367.5	337.7	29.81	12.327			
4,600.0	4,518.6	4,592.4	4,556.3	21.2	16.3	149.98	370.1	-248.8	377.7	347.0	30.64	12.326			
4,700.0	4,615.8	4,691.9	4,654.5	21.8	16.8	149.83	382.8	-258.4	387.9	356.4	31.47	12.325			
4,800.0	4,713.1	4,791.4	4,752.7	22.4	17.2	149.69	395.6	-268.0	398.0	365.7	32.30	12.324			
4,900.0	4,810.4	4,890.9	4,850.9	23.0	17.6	149.55	408.3	-277.6	408.2	375.1	33.13	12.322			

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17)											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	4,907.7	4,990.3	4,949.1	23.6	18.1	149.42	421.1	-287.2	418.4	384.5	33.96	12.320			
5,100.0	5,005.0	5,089.8	5,047.2	24.3	18.5	149.30	433.9	-296.9	428.6	393.8	34.80	12.317			
5,200.0	5,102.3	5,189.3	5,145.4	24.9	19.0	149.18	446.6	-306.5	438.8	403.2	35.64	12.314			
5,236.4	5,137.7	5,225.5	5,181.1	25.1	19.2	149.14	451.3	-310.0	442.5	406.6	35.94	12.313			
5,300.0	5,199.7	5,288.8	5,243.7	25.4	19.4	149.09	459.4	-316.1	448.4	411.9	36.49	12.289			
5,400.0	5,297.9	5,388.3	5,341.9	25.8	19.9	148.79	472.2	-325.7	455.3	417.9	37.33	12.196			
5,500.0	5,396.6	5,479.4	5,432.0	26.2	20.2	148.47	482.6	-333.6	460.1	422.1	38.01	12.104			
5,600.0	5,495.8	5,570.5	5,522.5	26.5	20.5	148.21	490.8	-339.8	463.9	425.3	38.60	12.019			
5,700.0	5,595.4	5,661.7	5,613.4	26.7	20.7	148.04	496.7	-344.2	466.7	427.6	39.09	11.939			
5,800.0	5,695.3	5,752.9	5,704.5	26.9	20.9	147.93	500.3	-347.0	468.4	428.9	39.48	11.863			
5,904.7	5,800.0	5,848.4	5,800.0	27.1	21.1	89.05	501.6	-347.9	469.0	429.2	39.80	11.783			
6,000.0	5,895.3	5,943.7	5,895.3	27.2	21.3	89.05	501.6	-347.9	469.0	428.8	40.17	11.674			
6,067.8	5,963.1	6,011.5	5,963.1	27.3	21.4	89.05	501.6	-347.9	469.0	428.5	40.45	11.594			
6,100.0	5,995.3	6,043.7	5,995.3	27.4	21.5	-91.06	501.6	-347.9	469.0	428.4	40.58	11.556			
6,150.0	6,045.1	6,093.9	6,045.5	27.4	21.6	-91.48	501.3	-347.9	469.0	428.2	40.83	11.487			
6,200.0	6,094.6	6,144.7	6,096.1	27.4	21.6	-91.95	498.1	-347.9	469.2	428.1	41.02	11.439			
6,250.0	6,143.5	6,195.7	6,146.8	27.4	21.6	-92.42	491.5	-347.9	469.3	428.2	41.13	11.412			
6,300.0	6,191.7	6,247.0	6,197.1	27.4	21.6	-92.88	481.5	-347.9	469.5	428.3	41.16	11.405			
6,350.0	6,238.9	6,298.6	6,246.9	27.3	21.6	-93.32	468.1	-347.9	469.7	428.5	41.13	11.419			
6,400.0	6,284.9	6,350.5	6,295.9	27.3	21.5	-93.75	451.3	-347.9	469.9	428.9	41.04	11.451			
6,450.0	6,329.5	6,402.6	6,343.9	27.2	21.4	-94.17	431.0	-347.9	470.1	429.3	40.88	11.499			
6,500.0	6,372.6	6,454.9	6,390.6	27.1	21.3	-94.56	407.4	-348.0	470.4	429.7	40.69	11.562			
6,550.0	6,413.9	6,507.5	6,435.8	27.0	21.2	-94.94	380.5	-348.0	470.6	430.2	40.45	11.634			
6,600.0	6,453.3	6,560.3	6,479.2	26.9	21.1	-95.30	350.5	-348.0	470.9	430.7	40.20	11.714			
6,650.0	6,490.5	6,613.4	6,520.7	26.7	20.9	-95.63	317.4	-348.0	471.2	431.2	39.94	11.796			
6,700.0	6,525.5	6,666.6	6,559.8	26.6	20.8	-95.94	281.3	-348.0	471.4	431.7	39.70	11.874			
6,750.0	6,558.1	6,720.1	6,596.5	26.5	20.6	-96.22	242.5	-348.0	471.7	432.2	39.50	11.942			
6,800.0	6,588.2	6,773.7	6,630.5	26.4	20.5	-96.47	201.0	-348.1	471.9	432.6	39.34	11.994			
6,850.0	6,615.6	6,827.5	6,661.6	26.3	20.4	-96.69	157.1	-348.1	472.1	432.9	39.27	12.023			
6,900.0	6,640.2	6,881.4	6,689.6	26.2	20.2	-96.88	111.1	-348.1	472.3	433.0	39.28	12.023			
6,950.0	6,661.9	6,935.4	6,714.3	26.1	20.1	-97.04	63.0	-348.1	472.5	433.1	39.41	11.989			
7,000.0	6,680.6	6,989.6	6,735.6	26.0	20.0	-97.17	13.3	-348.1	472.6	432.9	39.66	11.916			
7,050.0	6,696.2	7,043.8	6,753.3	25.9	19.9	-97.27	-37.9	-348.2	472.7	432.7	40.05	11.803			
7,100.0	6,708.7	7,098.0	6,767.4	25.9	19.8	-97.33	-90.3	-348.2	472.8	432.2	40.58	11.650			
7,150.0	6,718.0	7,152.3	6,777.7	25.9	20.1	-97.35	-143.6	-348.2	472.8	431.5	41.26	11.460			
7,200.0	6,724.0	7,206.6	6,784.3	26.0	20.6	-97.35	-197.5	-348.2	472.8	430.7	42.07	11.238			
7,250.0	6,726.8	7,260.9	6,786.9	26.1	21.2	-97.31	-251.7	-348.3	472.8	429.7	43.02	10.990			
7,271.6	6,727.0	7,283.6	6,787.0	26.2	21.4	-97.29	-274.4	-348.3	472.7	429.3	43.44	10.882			
7,273.4	6,727.0	7,285.5	6,787.0	26.2	21.4	-97.29	-276.3	-348.3	472.7	429.3	43.48	10.873			
7,273.4	6,727.0	7,285.5	6,787.0	26.2	21.4	-97.29	-276.3	-348.3	472.7	429.3	43.48	10.873			
7,274.4	6,727.0	7,286.5	6,786.9	26.2	21.5	-97.29	-277.3	-348.3	472.7	429.2	43.50	10.869			
7,300.0	6,726.8	7,312.1	6,786.8	26.3	21.7	-97.30	-302.9	-348.3	472.7	428.8	43.97	10.751			
7,400.0	6,726.1	7,412.1	6,786.4	27.0	23.0	-97.33	-402.9	-348.4	472.8	426.5	46.25	10.223			
7,500.0	6,725.3	7,512.1	6,786.0	27.9	24.4	-97.37	-502.9	-348.4	472.8	424.0	48.86	9.677			
7,600.0	6,724.6	7,612.1	6,785.5	29.0	25.9	-97.40	-602.9	-348.5	472.9	421.1	51.77	9.134			
7,700.0	6,723.9	7,712.1	6,785.1	30.4	27.5	-97.44	-702.9	-348.5	472.9	418.0	54.92	8.611			
7,800.0	6,723.1	7,812.1	6,784.6	31.9	29.2	-97.47	-802.9	-348.6	472.9	414.7	58.27	8.116			
7,900.0	6,722.4	7,912.1	6,784.2	33.5	31.0	-97.51	-902.9	-348.7	473.0	411.2	61.79	7.654			
8,000.0	6,721.7	8,012.1	6,783.7	35.2	32.9	-97.54	-1,002.9	-348.7	473.0	407.6	65.46	7.226			
8,100.0	6,720.9	8,112.1	6,783.3	37.0	34.8	-97.58	-1,102.9	-348.8	473.1	403.8	69.25	6.832			

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17)													Offset Site Error: 0.0 ft		
Survey Program: 0-MWD														Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
8,200.0	6,720.2	8,212.1	6,782.9	38.9	36.8	-97.61	-1,202.9	-348.8	473.1	400.0	73.13	6.469			
8,300.0	6,719.4	8,312.1	6,782.4	40.8	38.8	-97.65	-1,302.9	-348.9	473.1	396.0	77.11	6.136			
8,400.0	6,718.7	8,412.1	6,782.0	42.7	40.8	-97.68	-1,402.9	-348.9	473.2	392.0	81.15	5.831			
8,500.0	6,718.0	8,512.1	6,781.5	44.7	42.9	-97.72	-1,502.9	-349.0	473.2	388.0	85.26	5.550			
8,600.0	6,717.2	8,612.1	6,781.1	46.7	45.0	-97.76	-1,602.9	-349.1	473.3	383.8	89.42	5.292			
8,700.0	6,716.5	8,712.1	6,780.7	48.8	47.1	-97.79	-1,702.9	-349.1	473.3	379.7	93.63	5.055			
8,800.0	6,715.8	8,812.1	6,780.2	50.8	49.2	-97.83	-1,802.9	-349.2	473.4	375.5	97.88	4.836			
8,900.0	6,715.0	8,912.1	6,779.8	52.9	51.4	-97.86	-1,902.9	-349.2	473.4	371.2	102.17	4.634			
9,000.0	6,714.3	9,012.1	6,779.3	55.1	53.6	-97.90	-2,002.9	-349.3	473.4	367.0	106.48	4.446			
9,100.0	6,713.6	9,112.1	6,778.9	57.2	55.8	-97.93	-2,102.8	-349.4	473.5	362.7	110.82	4.272			
9,200.0	6,712.8	9,212.1	6,778.5	59.3	58.0	-97.97	-2,202.8	-349.4	473.5	358.3	115.19	4.111			
9,300.0	6,712.1	9,312.1	6,778.0	61.5	60.2	-98.00	-2,302.8	-349.5	473.6	354.0	119.58	3.960			
9,400.0	6,711.3	9,412.1	6,777.6	63.7	62.4	-98.04	-2,402.8	-349.5	473.6	349.6	123.99	3.820			
9,500.0	6,710.6	9,512.1	6,777.1	65.9	64.6	-98.07	-2,502.8	-349.6	473.7	345.2	128.41	3.689			
9,600.0	6,709.9	9,612.1	6,776.7	68.1	66.9	-98.11	-2,602.8	-349.7	473.7	340.8	132.85	3.566			
9,700.0	6,709.1	9,712.1	6,776.2	70.3	69.1	-98.14	-2,702.8	-349.7	473.7	336.4	137.30	3.450			
9,800.0	6,708.4	9,812.1	6,775.8	72.5	71.4	-98.18	-2,802.8	-349.8	473.8	332.0	141.77	3.342			
9,900.0	6,707.7	9,912.1	6,775.4	74.7	73.6	-98.21	-2,902.8	-349.8	473.8	327.6	146.24	3.240			
10,000.0	6,706.9	10,012.1	6,774.9	76.9	75.9	-98.25	-3,002.8	-349.9	473.9	323.1	150.73	3.144			
10,100.0	6,706.2	10,112.1	6,774.5	79.2	78.2	-98.28	-3,102.8	-349.9	473.9	318.7	155.22	3.053			
10,200.0	6,705.5	10,212.1	6,774.0	81.4	80.4	-98.32	-3,202.8	-350.0	474.0	314.2	159.73	2.967			
10,300.0	6,704.7	10,312.1	6,773.6	83.7	82.7	-98.35	-3,302.8	-350.1	474.0	309.8	164.24	2.886			
10,400.0	6,704.0	10,412.1	6,773.2	85.9	85.0	-98.39	-3,402.8	-350.1	474.1	305.3	168.76	2.809			
10,500.0	6,703.3	10,512.1	6,772.7	88.2	87.3	-98.43	-3,502.8	-350.2	474.1	300.8	173.28	2.736			
10,600.0	6,702.5	10,612.1	6,772.3	90.5	89.6	-98.46	-3,602.8	-350.2	474.1	296.3	177.81	2.667			
10,700.0	6,701.8	10,712.1	6,771.8	92.7	91.9	-98.50	-3,702.8	-350.3	474.2	291.8	182.34	2.601			
10,800.0	6,701.0	10,812.1	6,771.4	95.0	94.2	-98.53	-3,802.8	-350.4	474.2	287.3	186.88	2.538			
10,900.0	6,700.3	10,912.1	6,771.0	97.3	96.5	-98.57	-3,902.8	-350.4	474.3	282.9	191.43	2.478			
11,000.0	6,699.6	11,012.1	6,770.5	99.6	98.8	-98.60	-4,002.8	-350.5	474.3	278.3	195.98	2.420			
11,100.0	6,698.8	11,112.1	6,770.1	101.8	101.1	-98.64	-4,102.8	-350.5	474.4	273.8	200.53	2.366			
11,200.0	6,698.1	11,212.1	6,769.6	104.1	103.4	-98.67	-4,202.8	-350.6	474.4	269.3	205.08	2.313			
11,300.0	6,697.4	11,312.1	6,769.2	106.4	105.7	-98.71	-4,302.8	-350.7	474.5	264.8	209.64	2.263			
11,400.0	6,696.6	11,412.1	6,768.7	108.7	108.0	-98.74	-4,402.8	-350.7	474.5	260.3	214.20	2.215			
11,500.0	6,695.9	11,512.0	6,768.3	111.0	110.3	-98.78	-4,502.8	-350.8	474.6	255.8	218.76	2.169			
11,600.0	6,695.2	11,612.0	6,767.9	113.3	112.6	-98.81	-4,602.8	-350.8	474.6	251.3	223.33	2.125			
11,700.0	6,694.4	11,712.0	6,767.4	115.6	114.9	-98.85	-4,702.8	-350.9	474.7	246.8	227.90	2.083			
11,800.0	6,693.7	11,812.0	6,767.0	117.9	117.2	-98.88	-4,802.8	-350.9	474.7	242.2	232.47	2.042			
11,900.0	6,693.0	11,912.0	6,766.5	120.2	119.6	-98.92	-4,902.8	-351.0	474.7	237.7	237.04	2.003			
12,000.0	6,692.2	12,012.0	6,766.1	122.5	121.9	-98.95	-5,002.8	-351.1	474.8	233.2	241.61	1.965			
12,100.0	6,691.5	12,112.0	6,765.7	124.8	124.2	-98.99	-5,102.8	-351.1	474.8	228.7	246.19	1.929			
12,200.0	6,690.7	12,212.0	6,765.2	127.1	126.5	-99.02	-5,202.8	-351.2	474.9	224.1	250.76	1.894			
12,300.0	6,690.0	12,312.0	6,764.8	129.4	128.8	-99.06	-5,302.8	-351.2	474.9	219.6	255.34	1.860			
12,400.0	6,689.3	12,412.0	6,764.3	131.7	131.2	-99.09	-5,402.8	-351.3	475.0	215.1	259.92	1.827			
12,500.0	6,688.5	12,512.0	6,763.9	134.0	133.5	-99.13	-5,502.8	-351.4	475.0	210.5	264.50	1.796			
12,600.0	6,687.8	12,612.0	6,763.5	136.3	135.8	-99.16	-5,602.8	-351.4	475.1	206.0	269.08	1.766			
12,700.0	6,687.1	12,712.0	6,763.0	138.7	138.1	-99.20	-5,702.8	-351.5	475.1	201.5	273.66	1.736			
12,800.0	6,686.3	12,812.0	6,762.6	141.0	140.5	-99.23	-5,802.8	-351.5	475.2	196.9	278.24	1.708			
12,900.0	6,685.6	12,912.0	6,762.1	143.3	142.8	-99.27	-5,902.8	-351.6	475.2	192.4	282.83	1.680			
13,000.0	6,684.9	13,012.0	6,761.7	145.6	145.1	-99.30	-6,002.8	-351.7	475.3	187.9	287.41	1.654			
13,100.0	6,684.1	13,112.0	6,761.2	147.9	147.5	-99.34	-6,102.8	-351.7	475.3	183.3	291.99	1.628			
13,200.0	6,683.4	13,212.0	6,760.8	150.2	149.8	-99.37	-6,202.8	-351.8	475.4	178.8	296.58	1.603			

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #2 (1-25-17)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,300.0	6,682.6	13,312.0	6,760.4	152.6	152.1	-99.41	-6,302.8	-351.8	475.4	174.3	301.16	1.579		
13,400.0	6,681.9	13,412.0	6,759.9	154.9	154.4	-99.44	-6,402.8	-351.9	475.5	169.7	305.75	1.555		
13,500.0	6,681.2	13,512.0	6,759.5	157.2	156.8	-99.48	-6,502.8	-351.9	475.5	165.2	310.33	1.532		
13,600.0	6,680.4	13,612.0	6,759.0	159.5	159.1	-99.51	-6,602.8	-352.0	475.6	160.7	314.92	1.510		
13,700.0	6,679.7	13,712.0	6,758.6	161.9	161.4	-99.55	-6,702.8	-352.1	475.6	156.1	319.51	1.489	Level 3	
13,800.0	6,679.0	13,812.0	6,758.2	164.2	163.8	-99.58	-6,802.8	-352.1	475.7	151.6	324.09	1.468	Level 3	
13,900.0	6,678.2	13,912.0	6,757.7	166.5	166.1	-99.62	-6,902.8	-352.2	475.7	147.1	328.68	1.447	Level 3	
14,000.0	6,677.5	14,012.0	6,757.3	168.8	168.4	-99.65	-7,002.8	-352.2	475.8	142.5	333.27	1.428	Level 3	
14,035.5	6,677.2	14,047.6	6,757.1	169.7	169.3	-99.67	-7,038.3	-352.3	475.8	140.9	334.89	1.421	Level 3	
14,067.2	6,677.0	14,074.3	6,757.0	170.4	169.9	-99.67	-7,065.0	-352.3	475.8	139.6	336.23	1.415	Level 3, SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-323 - Wellbore #1 - Plan #2 (1-25-17)											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	90.55	-0.7	74.9	75.0					
100.0	100.0	100.0	100.0	0.1	0.1	90.55	-0.7	74.9	75.0	74.7	0.28	272.220		
200.0	200.0	200.0	200.0	0.4	0.4	90.55	-0.7	74.9	75.0	74.1	0.83	90.740		
300.0	300.0	300.0	300.0	0.7	0.7	90.55	-0.7	74.9	75.0	73.6	1.38	54.444		
400.0	400.0	400.0	400.0	1.0	1.0	90.55	-0.7	74.9	75.0	73.0	1.93	38.889		
500.0	500.0	500.0	500.0	1.2	1.2	90.55	-0.7	74.9	75.0	72.5	2.48	30.247		
600.0	600.0	600.0	600.0	1.5	1.5	90.55	-0.7	74.9	75.0	71.9	3.03	24.747		
700.0	700.0	700.0	700.0	1.8	1.8	90.55	-0.7	74.9	75.0	71.4	3.58	20.940		
800.0	800.0	800.0	800.0	2.1	2.1	90.55	-0.7	74.9	75.0	70.8	4.13	18.148 CC, ES		
900.0	900.0	899.1	899.1	2.3	2.3	89.67	0.4	75.5	75.5	70.8	4.68	16.147		
1,000.0	1,000.0	998.2	998.1	2.6	2.6	87.10	3.9	77.2	77.3	72.1	5.22	14.801		
1,100.0	1,100.0	1,096.9	1,096.6	2.9	2.9	142.47	9.7	80.0	81.7	75.9	5.76	14.170 SF		
1,200.0	1,199.9	1,195.2	1,194.5	3.1	3.2	139.07	17.7	83.8	89.7	83.4	6.31	14.231		
1,300.0	1,299.7	1,292.9	1,291.6	3.4	3.5	136.08	27.9	88.8	101.6	94.7	6.86	14.799		
1,400.0	1,399.3	1,389.9	1,387.5	3.7	3.8	133.63	40.2	94.7	117.0	109.6	7.44	15.737		
1,500.0	1,498.6	1,485.9	1,482.2	4.0	4.1	131.72	54.6	101.7	136.0	128.0	8.03	16.934		
1,600.0	1,597.5	1,581.4	1,576.0	4.4	4.5	130.28	70.9	109.6	158.4	149.7	8.66	18.296		
1,700.0	1,696.1	1,678.3	1,671.0	4.7	4.9	129.56	88.1	117.9	182.9	173.6	9.32	19.640		
1,800.0	1,794.2	1,774.8	1,765.6	5.1	5.4	129.50	105.3	126.2	209.1	199.1	10.00	20.903		
1,891.1	1,883.1	1,862.4	1,851.4	5.5	5.8	129.82	120.8	133.7	234.4	223.7	10.66	21.992		
1,900.0	1,891.7	1,870.9	1,859.7	5.6	5.8	129.89	122.3	134.5	236.9	226.2	10.72	22.090		
2,000.0	1,989.0	1,966.7	1,953.7	6.1	6.3	130.63	139.3	142.7	265.4	253.9	11.49	23.098		
2,100.0	2,086.3	2,062.5	2,047.6	6.6	6.7	131.23	156.4	150.9	293.9	281.7	12.28	23.943		
2,200.0	2,183.6	2,158.3	2,141.5	7.1	7.2	131.72	173.4	159.1	322.5	309.4	13.08	24.658		
2,300.0	2,280.9	2,254.1	2,235.4	7.7	7.7	132.13	190.4	167.4	351.1	337.2	13.89	25.267		
2,400.0	2,378.2	2,349.9	2,329.3	8.2	8.1	132.47	207.4	175.6	379.6	364.9	14.72	25.790		
2,500.0	2,475.4	2,445.7	2,423.3	8.8	8.6	132.77	224.4	183.8	408.2	392.7	15.56	26.242		
2,600.0	2,572.7	2,541.5	2,517.2	9.3	9.1	133.03	241.4	192.1	436.8	420.4	16.40	26.637		
2,700.0	2,670.0	2,637.3	2,611.1	9.9	9.6	133.26	258.4	200.3	465.5	448.2	17.25	26.983		
2,800.0	2,767.3	2,733.1	2,705.0	10.5	10.0	133.47	275.4	208.5	494.1	476.0	18.11	27.288		
2,900.0	2,864.6	2,828.9	2,799.0	11.1	10.5	133.64	292.5	216.7	522.7	503.7	18.97	27.559		
3,000.0	2,961.9	2,924.7	2,892.9	11.7	11.0	133.81	309.5	225.0	551.3	531.5	19.83	27.801		
3,100.0	3,059.2	3,020.5	2,986.8	12.2	11.5	133.95	326.5	233.2	580.0	559.3	20.70	28.018		
3,200.0	3,156.5	3,116.3	3,080.7	12.8	12.0	134.08	343.5	241.4	608.6	587.0	21.57	28.213		
3,300.0	3,253.8	3,212.1	3,174.6	13.4	12.5	134.20	360.5	249.7	637.2	614.8	22.45	28.390		
3,400.0	3,351.1	3,307.9	3,268.6	14.0	13.0	134.31	377.5	257.9	665.9	642.5	23.32	28.551		
3,500.0	3,448.4	3,403.7	3,362.5	14.6	13.5	134.41	394.5	266.1	694.5	670.3	24.20	28.697		
3,600.0	3,545.6	3,499.5	3,456.4	15.2	14.0	134.50	411.6	274.3	723.1	698.1	25.08	28.831		
3,700.0	3,642.9	3,595.3	3,550.3	15.8	14.5	134.59	428.6	282.6	751.8	725.8	25.97	28.954		
3,800.0	3,740.2	3,691.1	3,644.2	16.4	15.0	134.67	445.6	290.8	780.4	753.6	26.85	29.067		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-423 - Wellbore #1 - Plan #2 (1-25-17)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.35	-0.4	59.9	59.9					
100.0	100.0	99.0	99.0	0.1	0.1	90.35	-0.4	59.9	59.9	59.6	0.27	218.659		
200.0	200.0	199.0	199.0	0.4	0.4	90.35	-0.4	59.9	59.9	59.1	0.82	72.765		
300.0	300.0	299.0	299.0	0.7	0.7	90.35	-0.4	59.9	59.9	58.5	1.37	43.601		
400.0	400.0	399.0	399.0	1.0	1.0	90.35	-0.4	59.9	59.9	58.0	1.92	31.126		
500.0	500.0	499.0	499.0	1.2	1.2	90.35	-0.4	59.9	59.9	57.4	2.48	24.201		
600.0	600.0	599.0	599.0	1.5	1.5	90.35	-0.4	59.9	59.9	56.9	3.03	19.797		
700.0	700.0	699.0	699.0	1.8	1.8	90.35	-0.4	59.9	59.9	56.3	3.58	16.749		
800.0	800.0	799.0	799.0	2.1	2.1	90.35	-0.4	59.9	59.9	55.8	4.13	14.514		
900.0	900.0	899.0	899.0	2.3	2.3	90.35	-0.4	59.9	59.9	55.2	4.68	12.806		
1,000.0	1,000.0	999.0	999.0	2.6	2.6	90.35	-0.4	59.9	59.9	54.7	5.23	11.457 CC, ES		
1,100.0	1,100.0	1,099.0	1,099.0	2.9	2.9	149.82	-0.4	59.9	61.0	55.3	5.77	10.575		
1,200.0	1,199.9	1,198.9	1,198.9	3.1	3.2	151.55	-0.4	59.9	64.5	58.1	6.31	10.220 SF		
1,300.0	1,299.7	1,298.7	1,298.7	3.4	3.4	154.05	-0.4	59.9	70.3	63.4	6.84	10.270		
1,400.0	1,399.3	1,398.3	1,398.3	3.7	3.7	156.92	-0.4	59.9	78.6	71.2	7.38	10.654		
1,500.0	1,498.6	1,497.6	1,497.6	4.0	4.0	159.81	-0.4	59.9	89.6	81.6	7.91	11.317		
1,600.0	1,597.5	1,596.5	1,596.5	4.4	4.3	162.50	-0.4	59.9	103.1	94.7	8.44	12.215		
1,700.0	1,696.1	1,695.1	1,695.1	4.7	4.5	164.87	-0.4	59.9	119.4	110.5	8.97	13.310		
1,800.0	1,794.2	1,793.2	1,793.2	5.1	4.8	166.91	-0.4	59.9	138.4	128.9	9.50	14.569		
1,891.1	1,883.1	1,882.1	1,882.1	5.5	5.0	168.50	-0.4	59.9	157.9	148.0	9.97	15.838		
1,900.0	1,891.7	1,890.7	1,890.7	5.6	5.1	168.64	-0.4	59.9	160.0	149.9	10.02	15.961		
2,000.0	1,989.0	1,988.0	1,988.0	6.1	5.3	170.07	-0.4	59.9	182.7	172.1	10.58	17.273		
2,100.0	2,086.3	2,085.3	2,085.3	6.6	5.6	171.18	-0.4	59.9	205.5	194.4	11.14	18.452		
2,200.0	2,183.6	2,182.6	2,182.6	7.1	5.9	172.07	-0.4	59.9	228.4	216.7	11.70	19.517		
2,300.0	2,280.9	2,279.9	2,279.9	7.7	6.1	172.80	-0.4	59.9	251.3	239.1	12.27	20.481		
2,400.0	2,378.2	2,377.2	2,377.2	8.2	6.4	173.40	-0.4	59.9	274.3	261.5	12.84	21.356		
2,500.0	2,475.4	2,474.4	2,474.4	8.8	6.7	173.91	-0.4	59.9	297.3	283.9	13.42	22.155		
2,600.0	2,572.7	2,573.9	2,573.9	9.3	6.9	174.24	0.3	60.0	320.0	306.0	14.00	22.859		
2,700.0	2,670.0	2,674.5	2,674.4	9.9	7.2	174.11	3.6	60.3	342.0	327.4	14.59	23.440		
2,800.0	2,767.3	2,775.4	2,775.2	10.5	7.5	173.60	9.5	60.8	363.0	347.8	15.18	23.907		
2,900.0	2,864.6	2,876.5	2,875.9	11.1	7.8	172.76	18.1	61.6	383.2	367.4	15.79	24.271		
3,000.0	2,961.9	2,977.6	2,976.3	11.7	8.1	171.64	29.3	62.6	402.7	386.2	16.41	24.540		
3,100.0	3,059.2	3,078.6	3,076.3	12.2	8.4	170.27	43.2	63.9	421.5	404.5	17.05	24.720		
3,200.0	3,156.5	3,178.8	3,175.2	12.8	8.7	168.70	59.5	65.3	439.9	422.2	17.72	24.821		
3,300.0	3,253.8	3,276.4	3,271.3	13.4	9.0	167.19	76.3	66.9	458.3	439.9	18.41	24.890		
3,400.0	3,351.1	3,373.9	3,367.5	14.0	9.3	165.79	93.1	68.4	477.1	457.9	19.13	24.941		
3,500.0	3,448.4	3,471.5	3,463.6	14.6	9.7	164.50	109.8	69.9	496.1	476.2	19.86	24.977		
3,600.0	3,545.6	3,569.1	3,559.7	15.2	10.0	163.30	126.6	71.4	515.3	494.7	20.61	24.999		
3,700.0	3,642.9	3,666.7	3,655.8	15.8	10.4	162.18	143.4	72.9	534.7	513.3	21.38	25.010		
3,800.0	3,740.2	3,764.3	3,751.9	16.4	10.7	161.15	160.2	74.5	554.3	532.2	22.16	25.013		
3,900.0	3,837.5	3,861.8	3,848.0	17.0	11.1	160.18	177.0	76.0	574.1	551.2	22.96	25.008		
4,000.0	3,934.8	3,959.4	3,944.1	17.6	11.5	159.28	193.7	77.5	594.0	570.3	23.76	24.997		
4,100.0	4,032.1	4,057.0	4,040.2	18.2	11.9	158.44	210.5	79.0	614.1	589.5	24.58	24.981		
4,200.0	4,129.4	4,154.6	4,136.4	18.8	12.3	157.65	227.3	80.5	634.3	608.9	25.41	24.962		
4,300.0	4,226.7	4,252.2	4,232.5	19.4	12.7	156.91	244.1	82.1	654.5	628.3	26.24	24.941		
4,400.0	4,324.0	4,349.7	4,328.6	20.0	13.1	156.21	260.9	83.6	674.9	647.8	27.09	24.917		
4,500.0	4,421.3	4,447.3	4,424.7	20.6	13.5	155.56	277.6	85.1	695.4	667.5	27.94	24.891		
4,600.0	4,518.6	4,544.9	4,520.8	21.2	13.9	154.94	294.4	86.6	716.0	687.2	28.79	24.865		
4,700.0	4,615.8	4,642.5	4,616.9	21.8	14.3	154.36	311.2	88.2	736.6	706.9	29.66	24.838		
4,800.0	4,713.1	4,740.0	4,713.0	22.4	14.7	153.80	328.0	89.7	757.3	726.8	30.52	24.811		
4,900.0	4,810.4	4,837.6	4,809.1	23.0	15.1	153.28	344.7	91.2	778.1	746.7	31.40	24.783		

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-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-423 - Wellbore #1 - Plan #2 (1-25-17)		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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
5,000.0	4,907.7	4,935.2	4,905.3	23.6	15.5	152.78	361.5	92.7	798.9	766.6	32.27	24.756					

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-243 - Wellbore #1 - Plan #2 (1-25-17)											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	90.46	-0.7	90.0	90.0						
100.0	100.0	100.0	100.0	0.1	0.1	90.46	-0.7	90.0	90.0	89.7	0.28	326.861			
200.0	200.0	200.0	200.0	0.4	0.4	90.46	-0.7	90.0	90.0	89.2	0.83	108.954			
300.0	300.0	300.0	300.0	0.7	0.7	90.46	-0.7	90.0	90.0	88.6	1.38	65.372			
400.0	400.0	400.0	400.0	1.0	1.0	90.46	-0.7	90.0	90.0	88.1	1.93	46.694	CC, ES		
500.0	500.0	498.4	498.4	1.2	1.2	89.86	0.2	90.9	90.9	88.4	2.47	36.789			
600.0	600.0	596.7	596.6	1.5	1.5	88.15	3.0	93.4	93.5	90.5	3.01	31.035			
700.0	700.0	694.8	694.5	1.8	1.8	85.51	7.7	97.7	98.1	94.6	3.57	27.509			
800.0	800.0	792.4	791.7	2.1	2.1	82.23	14.1	103.6	104.9	100.7	4.14	25.350			
900.0	900.0	889.5	888.2	2.3	2.4	78.61	22.4	111.1	114.0	109.3	4.73	24.094			
1,000.0	1,000.0	986.0	983.7	2.6	2.7	74.93	32.4	120.3	125.6	120.3	5.35	23.462	SF		
1,100.0	1,100.0	1,081.7	1,078.1	2.9	3.1	130.48	44.0	131.0	140.7	134.9	5.82	24.171			
1,200.0	1,199.9	1,176.4	1,171.1	3.1	3.5	128.08	57.3	143.1	160.0	153.6	6.39	25.031			
1,300.0	1,299.7	1,271.4	1,263.9	3.4	4.0	126.43	72.2	156.7	182.9	175.9	6.97	26.236			
1,400.0	1,399.3	1,368.3	1,358.5	3.7	4.5	125.58	87.6	170.8	207.8	200.3	7.56	27.480			
1,500.0	1,498.6	1,464.7	1,452.6	4.0	5.0	125.36	103.0	184.9	234.2	226.0	8.17	28.664			
1,600.0	1,597.5	1,560.7	1,546.4	4.4	5.5	125.59	118.3	199.0	262.1	253.3	8.80	29.787			
1,700.0	1,696.1	1,656.2	1,639.6	4.7	6.0	126.12	133.6	212.9	291.4	282.0	9.45	30.836			
1,800.0	1,794.2	1,751.1	1,732.3	5.1	6.5	126.85	148.7	226.8	322.4	312.2	10.13	31.816			
1,891.1	1,883.1	1,837.1	1,816.2	5.5	7.0	127.64	162.5	239.4	351.9	341.2	10.78	32.655			
1,900.0	1,891.7	1,845.4	1,824.3	5.6	7.1	127.75	163.8	240.6	354.9	344.1	10.84	32.726			
2,000.0	1,989.0	1,939.4	1,916.1	6.1	7.6	128.95	178.8	254.3	388.2	376.6	11.61	33.447			
2,100.0	2,086.3	2,033.4	2,007.9	6.6	8.1	129.96	193.8	268.1	421.7	409.3	12.38	34.048			
2,200.0	2,183.6	2,127.4	2,099.6	7.1	8.6	130.81	208.8	281.8	455.2	442.0	13.17	34.554			
2,300.0	2,280.9	2,221.4	2,191.4	7.7	9.1	131.56	223.8	295.5	488.8	474.8	13.97	34.984			
2,400.0	2,378.2	2,315.4	2,283.2	8.2	9.7	132.20	238.8	309.3	522.5	507.7	14.78	35.354			
2,500.0	2,475.4	2,409.4	2,375.0	8.8	10.2	132.77	253.9	323.0	556.2	540.6	15.59	35.675			
2,600.0	2,572.7	2,503.4	2,466.7	9.3	10.7	133.27	268.9	336.7	590.0	573.6	16.41	35.956			
2,700.0	2,670.0	2,597.4	2,558.5	9.9	11.2	133.72	283.9	350.5	623.8	606.6	17.23	36.202			
2,800.0	2,767.3	2,691.4	2,650.3	10.5	11.8	134.12	298.9	364.2	657.7	639.6	18.06	36.421			
2,900.0	2,864.6	2,785.4	2,742.1	11.1	12.3	134.49	313.9	378.0	691.5	672.7	18.89	36.615			
3,000.0	2,961.9	2,879.4	2,833.8	11.7	12.8	134.82	328.9	391.7	725.4	705.7	19.72	36.790			
3,100.0	3,059.2	2,973.4	2,925.6	12.2	13.4	135.12	343.9	405.4	759.3	738.8	20.55	36.947			
3,200.0	3,156.5	3,067.5	3,017.4	12.8	13.9	135.39	358.9	419.2	793.3	771.9	21.39	37.089			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-343 - Wellbore #1 - Plan #2 (1-25-17)													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	+N/-S	+E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	(ft)	(ft)	(ft)	(ft)	(ft)		
0.0	0.0	0.0	0.0	0.0	0.0	90.59	-1.1	105.0	105.1					
100.0	100.0	99.0	99.0	0.1	0.1	90.59	-1.1	105.0	105.0	104.8	0.27	383.429		
200.0	200.0	199.0	199.0	0.4	0.4	90.59	-1.1	105.0	105.0	104.2	0.82	127.597	CC, ES	
300.0	300.0	296.9	296.9	0.7	0.7	90.18	-0.3	106.0	106.0	104.7	1.36	77.779		
400.0	400.0	394.6	394.5	1.0	0.9	88.99	1.9	109.0	109.1	107.2	1.91	57.193		
500.0	500.0	492.1	491.8	1.2	1.2	87.13	5.7	113.9	114.3	111.8	2.47	46.338		
600.0	600.0	589.2	588.5	1.5	1.5	84.81	11.0	120.8	121.7	118.7	3.05	39.964		
700.0	700.0	685.8	684.5	1.8	1.9	82.22	17.7	129.5	131.5	127.9	3.65	36.012		
800.0	800.0	781.8	779.5	2.1	2.2	79.55	25.8	140.1	143.8	139.5	4.29	33.519		
900.0	900.0	877.0	873.5	2.3	2.6	76.95	35.3	152.5	158.6	153.7	4.96	31.966		
1,000.0	1,000.0	971.4	966.2	2.6	3.1	74.51	46.2	166.6	176.0	170.3	5.67	31.045	SF	
1,100.0	1,100.0	1,064.8	1,057.4	2.9	3.6	131.17	58.3	182.4	196.7	190.9	5.88	33.437		
1,200.0	1,199.9	1,156.7	1,146.8	3.1	4.1	129.62	71.5	199.6	221.6	215.1	6.46	34.324		
1,300.0	1,299.7	1,248.0	1,234.9	3.4	4.6	128.57	85.9	218.4	250.2	243.2	7.04	35.561		
1,400.0	1,399.3	1,343.1	1,326.5	3.7	5.2	127.99	101.4	238.5	281.2	273.6	7.63	36.853		
1,500.0	1,498.6	1,437.6	1,417.6	4.0	5.9	127.83	116.8	258.6	313.8	305.5	8.23	38.107		
1,600.0	1,597.5	1,531.6	1,508.2	4.4	6.5	127.95	132.1	278.5	347.9	339.0	8.86	39.281		
1,700.0	1,696.1	1,624.9	1,598.1	4.7	7.1	128.29	147.3	298.3	383.5	374.0	9.50	40.374		
1,800.0	1,794.2	1,717.5	1,687.4	5.1	7.7	128.76	162.3	317.9	420.7	410.5	10.16	41.389		
1,891.1	1,883.1	1,801.3	1,768.0	5.5	8.3	129.28	176.0	335.7	456.0	445.2	10.79	42.248		
1,900.0	1,891.7	1,809.4	1,775.8	5.6	8.3	129.38	177.3	337.4	459.5	448.7	10.86	42.313		
2,000.0	1,989.0	1,900.9	1,864.0	6.1	8.9	130.38	192.2	356.8	499.1	487.5	11.61	42.976		
2,100.0	2,086.3	1,992.4	1,952.2	6.6	9.5	131.23	207.1	376.2	538.8	526.5	12.38	43.510		
2,200.0	2,183.6	2,083.9	2,040.4	7.1	10.2	131.97	222.0	395.6	578.6	565.5	13.17	43.947		
2,300.0	2,280.9	2,175.4	2,128.5	7.7	10.8	132.61	236.9	415.0	618.5	604.5	13.96	44.310		
2,400.0	2,378.2	2,266.9	2,216.7	8.2	11.4	133.18	251.8	434.4	658.4	643.7	14.76	44.613		
2,500.0	2,475.4	2,358.4	2,304.9	8.8	12.0	133.68	266.6	453.8	698.4	682.8	15.57	44.869		
2,600.0	2,572.7	2,449.9	2,393.0	9.3	12.6	134.12	281.5	473.2	738.4	722.0	16.38	45.088		
2,700.0	2,670.0	2,541.4	2,481.2	9.9	13.3	134.52	296.4	492.6	778.5	761.3	17.19	45.276		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<b>Offset TVD Reference:</b>	Offset Datum

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

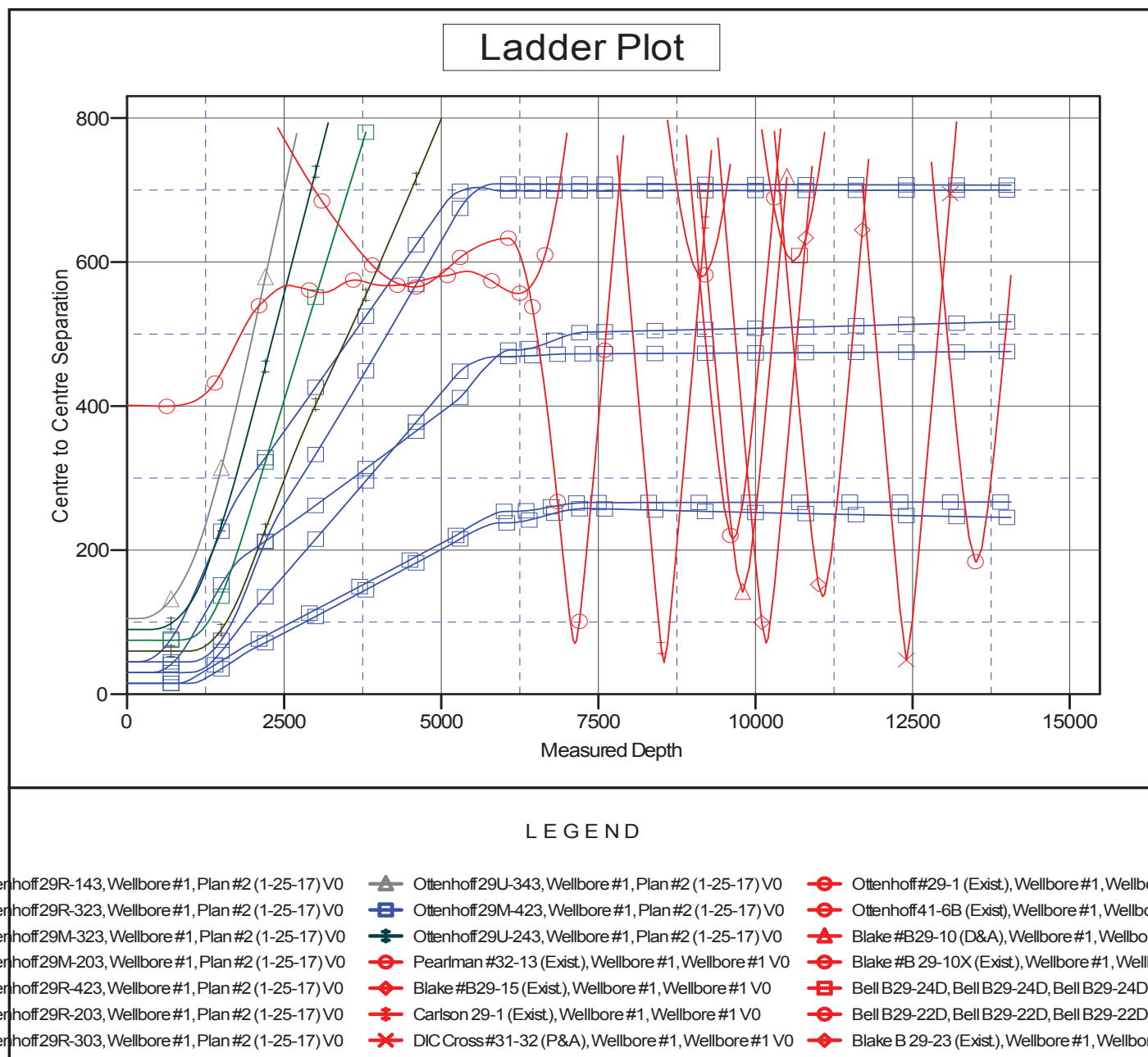
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Ottenhoff 29R-243

Coordinate System is US State Plane 1983, Colorado Northern Zone

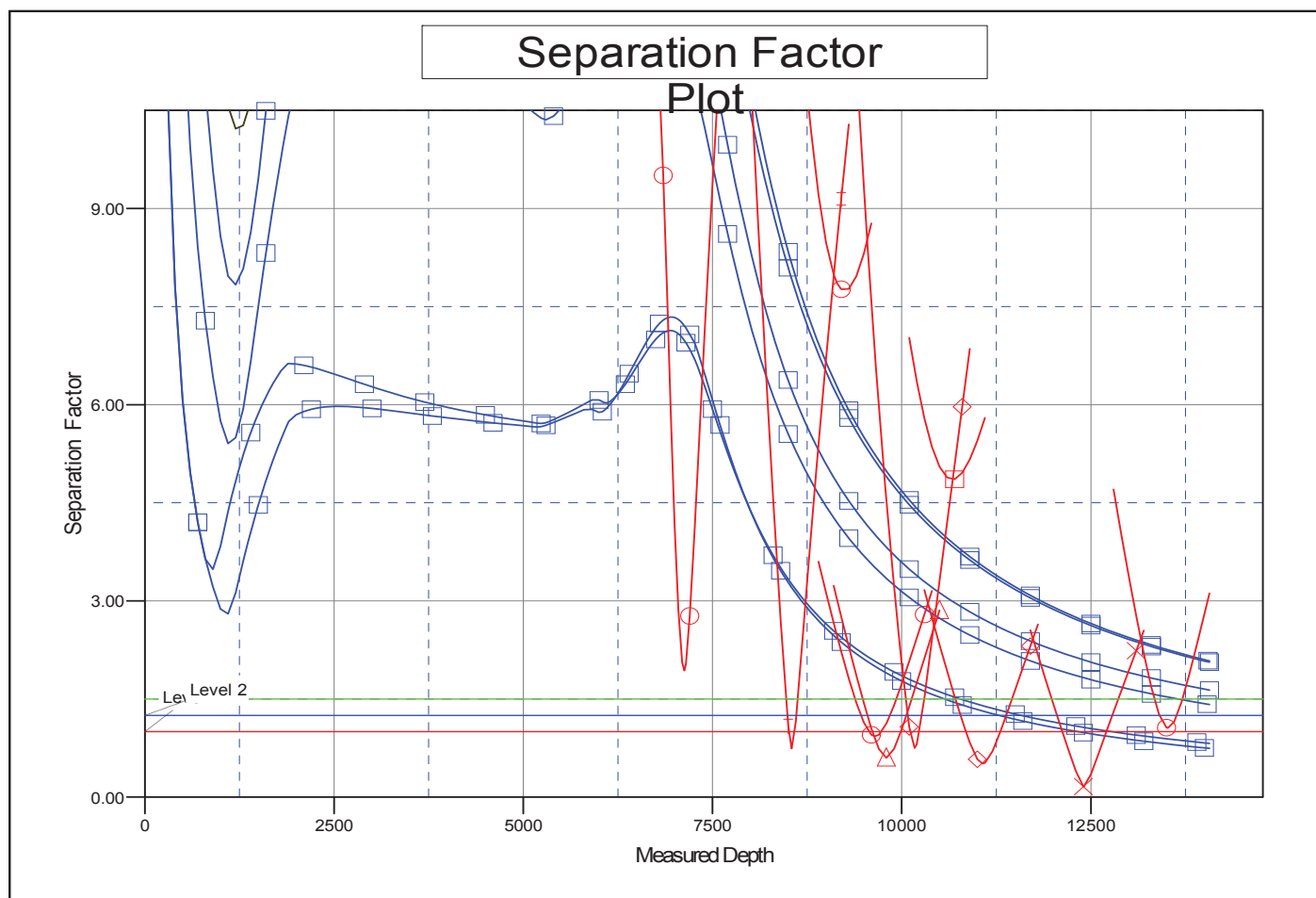
Grid Convergence at Surface is: 0.60°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<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-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.45 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #2 (1-25-17)	<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-243  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.60°



### LEGEND

Ottenhoff 29R-143, Wellbore #1, Plan #2 (1-25-17) V0	Ottenhoff 29U-343, Wellbore #1, Plan #2 (1-25-17) V0	Ottenhoff #29-1 (Exist), Wellbore #1, Wellbore #
Ottenhoff 29R-323, Wellbore #1, Plan #2 (1-25-17) V0	Ottenhoff 29M-423, Wellbore #1, Plan #2 (1-25-17) V0	Ottenhoff 41-6B (Exist), Wellbore #1, Wellbore #
Ottenhoff 29M-323, Wellbore #1, Plan #2 (1-25-17) V0	Ottenhoff 29U-243, Wellbore #1, Plan #2 (1-25-17) V0	Blake #B29-10 (D&A), Wellbore #1, Wellbore #
Ottenhoff 29M-203, Wellbore #1, Plan #2 (1-25-17) V0	Pearlman #32-13 (Exist), Wellbore #1, Wellbore #1 V0	Blake #B 29-10X (Exist), Wellbore #1, Wellbore #
Ottenhoff 29R-423, Wellbore #1, Plan #2 (1-25-17) V0	Blake #B29-15 (Exist), Wellbore #1, Wellbore #1 V0	Bell B29-24D, Bell B29-24D, Bell B29-24D V0
Ottenhoff 29R-203, Wellbore #1, Plan #2 (1-25-17) V0	Carlson 29-1 (Exist), Wellbore #1, Wellbore #1 V0	Bell B29-22D, Bell B29-22D, Bell B29-22D V0
Ottenhoff 29R-303, Wellbore #1, Plan #2 (1-25-17) V0	DIC Cross #31-32 (P&A), Wellbore #1, Wellbore #1 V0	Blake B 29-23 (Exist), Wellbore #1, Wellbore #