

# PETROLEUM DEVELOPMENT CORP DJ Basin

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

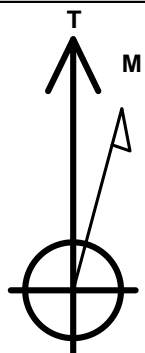
Surface Location: Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W  
North American Datum 1983 , US State Plane 1983, Colorado Northern Zone  
Ground Elevation: 4663.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1381166.54	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 2629'FSL & 1902'FEL, Sec.32	6677.0	-7369.2	-818.6	Point



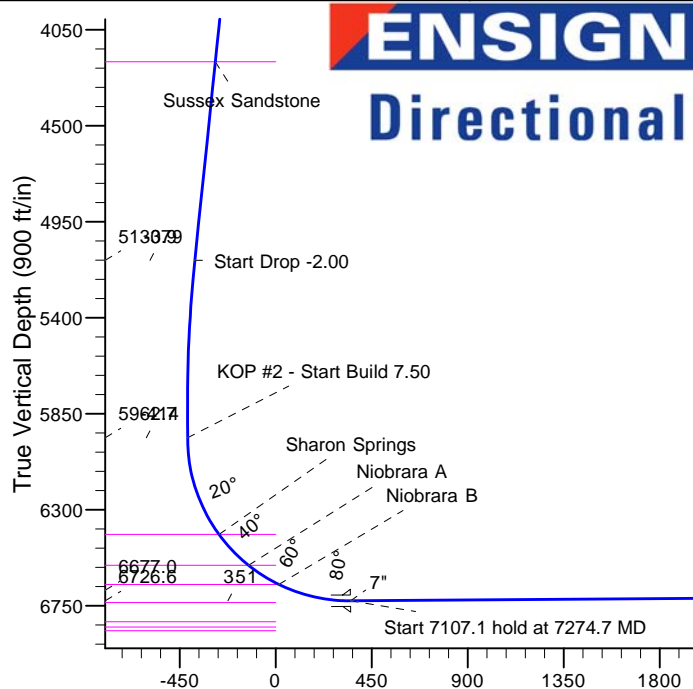
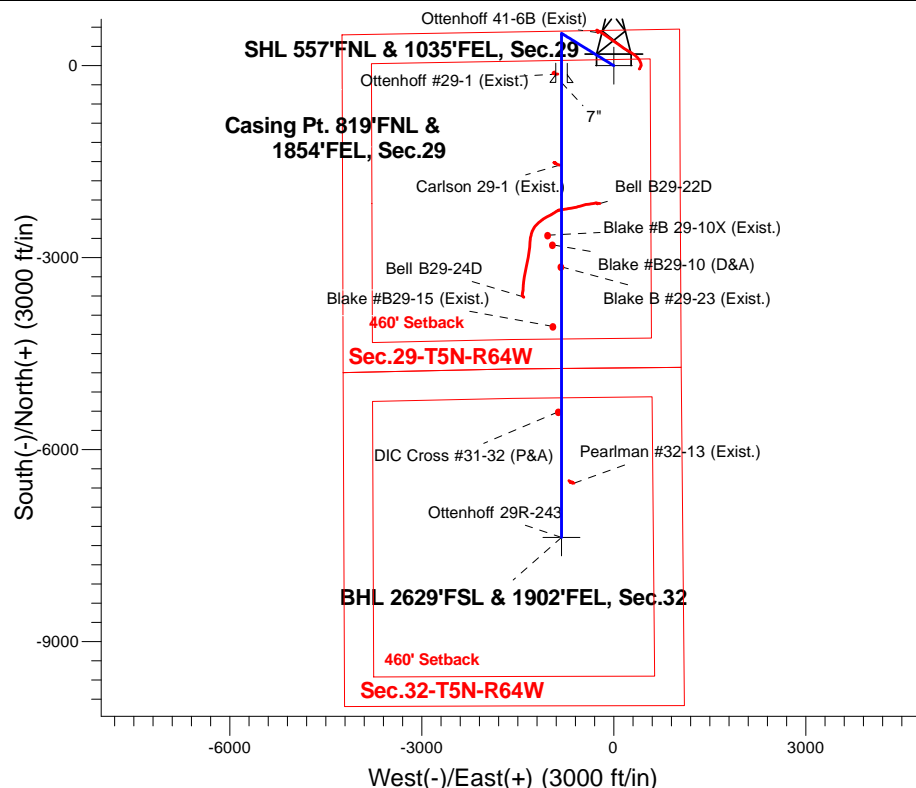
Azimuths to True North  
Magnetic North: 8.12°

Magnetic Field  
Strength: 52644.1snT  
Dip Angle: 66.90°  
Date: 2/29/2016  
Model: IGRF2010

Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W  
Ottenhoff 29R-243  
Plan #1 (3-14-16)  
15:54, March 17 2016

## ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP - Start Build 1.50
5130.9	5231.3	Start Drop -2.00
5962.7	6069.4	KOP #2 - Start Build 7.50
6726.6	7274.7	Start 7107.1 hold at 7274.7 MD
6677.0	14381.8	TD at 14381.8



## 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	1900.5	13.51	301.77	1892.1	55.6	-89.8	1.50	301.77	-45.4	
4	5231.3	13.51	301.77	5130.9	465.3	-751.2	0.00	0.00	-379.5	
5	5906.7	0.00	0.00	5800.0	507.0	-818.6	2.00	180.00	-413.5	
6	6069.4	0.00	0.00	5962.7	507.0	-818.6	0.00	0.00	-413.5	
7	7274.7	90.40	180.00	6726.6	-262.3	-818.6	7.50	180.00	351.0	
8	14381.8	90.40	180.00	6677.0	-7369.2	-818.6	0.00	0.00	7414.6	BHL 2629'FSL & 1902'FEL, Sec.32

BHL 2629'FSL & 1902'FEL, Sec.32

Vertical Section at 186.34° (900 ft/in)



# **PETROLEUM DEVELOPMENT CORP DJ Basin**

**SEC.29-T5N-R64W**

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

**Ottenhoff 29R-243**

**Wellbore #1**

**Plan: Plan #1 (3-14-16)**

## **Standard Planning Report**

**17 March, 2016**

<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 #1 (3-14-16)		

<b>Project</b>	SEC.29-T5N-R64W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

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

Well	Ottenhoff 29R-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	2/29/2016	8.12	66.90	52,644

<b>Design</b>	Plan #1 (3-14-16)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	186.34

<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	
1,900.5	13.51	301.77	1,892.1	55.6	-89.8	1.50	1.50	0.00	301.77	
5,231.3	13.51	301.77	5,130.9	465.3	-751.2	0.00	0.00	0.00	0.00	
5,906.7	0.00	0.00	5,800.0	507.0	-818.6	2.00	-2.00	0.00	180.00	
6,069.4	0.00	0.00	5,962.7	507.0	-818.6	0.00	0.00	0.00	0.00	
7,274.7	90.40	180.00	6,726.6	-262.3	-818.6	7.50	7.50	0.00	180.00	
14,381.8	90.40	180.00	6,677.0	-7,369.2	-818.6	0.00	0.00	0.00	0.00	BHL 2629'FSL & 1902

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 #1 (3-14-16)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 557°FNL & 1035°FEL, Sec.29									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
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	301.77	1,100.0	0.7	-1.1	-0.6	1.50	1.50	0.00
1,200.0	3.00	301.77	1,199.9	2.8	-4.5	-2.2	1.50	1.50	0.00
1,300.0	4.50	301.77	1,299.7	6.2	-10.0	-5.1	1.50	1.50	0.00
1,400.0	6.00	301.77	1,399.3	11.0	-17.8	-9.0	1.50	1.50	0.00
1,500.0	7.50	301.77	1,498.6	17.2	-27.8	-14.0	1.50	1.50	0.00
1,600.0	9.00	301.77	1,597.5	24.8	-40.0	-20.2	1.50	1.50	0.00
1,700.0	10.50	301.77	1,696.1	33.7	-54.4	-27.5	1.50	1.50	0.00
1,800.0	12.00	301.77	1,794.2	44.0	-71.0	-35.8	1.50	1.50	0.00
1,900.0	13.50	301.77	1,891.7	55.6	-89.7	-45.3	1.50	1.50	0.00
1,900.5	13.51	301.77	1,892.1	55.6	-89.8	-45.4	1.50	1.50	0.00
2,000.0	13.51	301.77	1,988.9	67.9	-109.6	-55.4	0.00	0.00	0.00
2,100.0	13.51	301.77	2,086.2	80.2	-129.4	-65.4	0.00	0.00	0.00
2,200.0	13.51	301.77	2,183.4	92.5	-149.3	-75.4	0.00	0.00	0.00
2,300.0	13.51	301.77	2,280.6	104.8	-169.1	-85.5	0.00	0.00	0.00
2,400.0	13.51	301.77	2,377.9	117.1	-189.0	-95.5	0.00	0.00	0.00
2,500.0	13.51	301.77	2,475.1	129.4	-208.9	-105.5	0.00	0.00	0.00
2,600.0	13.51	301.77	2,572.3	141.7	-228.7	-115.5	0.00	0.00	0.00
2,700.0	13.51	301.77	2,669.6	154.0	-248.6	-125.6	0.00	0.00	0.00
2,800.0	13.51	301.77	2,766.8	166.3	-268.4	-135.6	0.00	0.00	0.00
2,900.0	13.51	301.77	2,864.0	178.6	-288.3	-145.6	0.00	0.00	0.00
3,000.0	13.51	301.77	2,961.3	190.9	-308.1	-155.7	0.00	0.00	0.00
3,100.0	13.51	301.77	3,058.5	203.2	-328.0	-165.7	0.00	0.00	0.00
3,200.0	13.51	301.77	3,155.7	215.5	-347.9	-175.7	0.00	0.00	0.00
3,300.0	13.51	301.77	3,253.0	227.8	-367.7	-185.8	0.00	0.00	0.00
3,400.0	13.51	301.77	3,350.2	240.1	-387.6	-195.8	0.00	0.00	0.00
3,500.0	13.51	301.77	3,447.4	252.3	-407.4	-205.8	0.00	0.00	0.00
3,584.9	13.51	301.77	3,530.0	262.8	-424.3	-214.3	0.00	0.00	0.00
Parkman Sandstone									
3,600.0	13.51	301.77	3,544.7	264.6	-427.3	-215.9	0.00	0.00	0.00
3,700.0	13.51	301.77	3,641.9	276.9	-447.1	-225.9	0.00	0.00	0.00
3,800.0	13.51	301.77	3,739.1	289.2	-467.0	-235.9	0.00	0.00	0.00
3,900.0	13.51	301.77	3,836.4	301.5	-486.8	-246.0	0.00	0.00	0.00
4,000.0	13.51	301.77	3,933.6	313.8	-506.7	-256.0	0.00	0.00	0.00
4,100.0	13.51	301.77	4,030.8	326.1	-526.6	-266.0	0.00	0.00	0.00
4,200.0	13.51	301.77	4,128.1	338.4	-546.4	-276.0	0.00	0.00	0.00
4,274.0	13.51	301.77	4,200.0	347.5	-561.1	-283.5	0.00	0.00	0.00
Sussex Sandstone									
4,300.0	13.51	301.77	4,225.3	350.7	-566.3	-286.1	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well Ottenhoff 29R-243
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Project:	SEC.29-T5N-R64W	MD Reference:	WELL @ 4686.0ft (RKB - 23')
Site:	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	North Reference:	True
Well:	Ottenhoff 29R-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (3-14-16)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,400.0	13.51	301.77	4,322.5	363.0	-586.1	-296.1	0.00	0.00	0.00
4,500.0	13.51	301.77	4,419.8	375.3	-606.0	-306.1	0.00	0.00	0.00
4,600.0	13.51	301.77	4,517.0	387.6	-625.8	-316.2	0.00	0.00	0.00
4,700.0	13.51	301.77	4,614.3	399.9	-645.7	-326.2	0.00	0.00	0.00
4,800.0	13.51	301.77	4,711.5	412.2	-665.5	-336.2	0.00	0.00	0.00
4,900.0	13.51	301.77	4,808.7	424.5	-685.4	-346.3	0.00	0.00	0.00
5,000.0	13.51	301.77	4,906.0	436.8	-705.3	-356.3	0.00	0.00	0.00
5,100.0	13.51	301.77	5,003.2	449.1	-725.1	-366.3	0.00	0.00	0.00
5,200.0	13.51	301.77	5,100.4	461.4	-745.0	-376.4	0.00	0.00	0.00
5,231.3	13.51	301.77	5,130.9	465.3	-751.2	-379.5	0.00	0.00	0.00
Start Drop -2.00									
5,300.0	12.13	301.77	5,197.8	473.3	-764.1	-386.0	2.00	-2.00	0.00
5,400.0	10.13	301.77	5,296.0	483.5	-780.6	-394.3	2.00	-2.00	0.00
5,500.0	8.13	301.77	5,394.7	491.8	-794.1	-401.2	2.00	-2.00	0.00
5,600.0	6.13	301.77	5,493.9	498.4	-804.6	-406.5	2.00	-2.00	0.00
5,700.0	4.13	301.77	5,593.5	503.1	-812.2	-410.3	2.00	-2.00	0.00
5,800.0	2.13	301.77	5,693.3	506.0	-816.9	-412.7	2.00	-2.00	0.00
5,900.0	0.13	301.77	5,793.3	507.0	-818.5	-413.5	2.00	-2.00	0.00
5,906.7	0.00	0.00	5,800.0	507.0	-818.6	-413.5	2.00	-2.00	0.00
6,000.0	0.00	0.00	5,893.3	507.0	-818.6	-413.5	0.00	0.00	0.00
6,069.4	0.00	0.00	5,962.7	507.0	-818.6	-413.5	0.00	0.00	0.00
KOP #2 - Start Build 7.50									
6,100.0	2.30	180.00	5,993.3	506.4	-818.6	-412.9	7.51	7.51	0.00
6,200.0	9.80	180.00	6,092.7	495.9	-818.6	-402.5	7.50	7.50	0.00
6,300.0	17.30	180.00	6,189.8	472.5	-818.6	-379.2	7.50	7.50	0.00
6,400.0	24.80	180.00	6,283.1	436.6	-818.6	-343.5	7.50	7.50	0.00
6,500.0	32.30	180.00	6,370.9	388.8	-818.6	-296.1	7.50	7.50	0.00
6,553.4	36.30	180.00	6,415.0	358.7	-818.6	-266.1	7.50	7.50	0.00
Sharon Springs									
6,600.0	39.80	180.00	6,451.7	330.0	-818.6	-237.6	7.50	7.50	0.00
6,700.0	47.30	180.00	6,524.1	261.2	-818.6	-169.2	7.50	7.50	0.00
6,755.1	51.43	180.00	6,560.0	219.3	-818.6	-127.6	7.50	7.50	0.00
Niobrara A									
6,800.0	54.80	180.00	6,586.9	183.4	-818.6	-92.0	7.50	7.50	0.00
6,900.0	62.30	180.00	6,639.1	98.2	-818.6	-7.2	7.50	7.50	0.00
6,924.3	64.12	180.00	6,650.0	76.5	-818.6	14.3	7.50	7.50	0.00
Niobrara B									
7,000.0	69.80	180.00	6,679.6	6.9	-818.6	83.5	7.50	7.50	0.00
7,100.0	77.30	180.00	6,707.9	-89.0	-818.6	178.8	7.50	7.50	0.00
7,200.0	84.80	180.00	6,723.5	-187.7	-818.6	276.9	7.50	7.50	0.00
7,274.7	90.40	180.00	6,726.6	-262.3	-818.6	351.0	7.50	7.50	0.00
Start 7107.1 hold at 7274.7 MD - 7"									
7,300.0	90.40	180.00	6,726.4	-287.6	-818.6	376.2	0.00	0.00	0.00
7,400.0	90.40	180.00	6,725.7	-387.6	-818.6	475.6	0.00	0.00	0.00
7,500.0	90.40	180.00	6,725.0	-487.6	-818.6	575.0	0.00	0.00	0.00
7,600.0	90.40	180.00	6,724.3	-587.6	-818.6	674.3	0.00	0.00	0.00
7,700.0	90.40	180.00	6,723.6	-687.6	-818.6	773.7	0.00	0.00	0.00
7,800.0	90.40	180.00	6,722.9	-787.6	-818.6	873.1	0.00	0.00	0.00
7,900.0	90.40	180.00	6,722.3	-887.6	-818.6	972.5	0.00	0.00	0.00
8,000.0	90.40	180.00	6,721.6	-987.6	-818.6	1,071.9	0.00	0.00	0.00
8,100.0	90.40	180.00	6,720.9	-1,087.6	-818.6	1,171.3	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 #1 (3-14-16)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,200.0	90.40	180.00	6,720.2	-1,187.5	-818.6	1,270.7	0.00	0.00	0.00
8,300.0	90.40	180.00	6,719.5	-1,287.5	-818.6	1,370.0	0.00	0.00	0.00
8,400.0	90.40	180.00	6,718.8	-1,387.5	-818.6	1,469.4	0.00	0.00	0.00
8,500.0	90.40	180.00	6,718.1	-1,487.5	-818.6	1,568.8	0.00	0.00	0.00
8,600.0	90.40	180.00	6,717.4	-1,587.5	-818.6	1,668.2	0.00	0.00	0.00
8,700.0	90.40	180.00	6,716.7	-1,687.5	-818.6	1,767.6	0.00	0.00	0.00
8,800.0	90.40	180.00	6,716.0	-1,787.5	-818.6	1,867.0	0.00	0.00	0.00
8,900.0	90.40	180.00	6,715.3	-1,887.5	-818.6	1,966.4	0.00	0.00	0.00
9,000.0	90.40	180.00	6,714.6	-1,987.5	-818.6	2,065.7	0.00	0.00	0.00
9,100.0	90.40	180.00	6,713.9	-2,087.5	-818.6	2,165.1	0.00	0.00	0.00
9,200.0	90.40	180.00	6,713.2	-2,187.5	-818.6	2,264.5	0.00	0.00	0.00
9,300.0	90.40	180.00	6,712.5	-2,287.5	-818.6	2,363.9	0.00	0.00	0.00
9,400.0	90.40	180.00	6,711.8	-2,387.5	-818.6	2,463.3	0.00	0.00	0.00
9,500.0	90.40	180.00	6,711.1	-2,487.5	-818.6	2,562.7	0.00	0.00	0.00
9,600.0	90.40	180.00	6,710.4	-2,587.5	-818.6	2,662.1	0.00	0.00	0.00
9,700.0	90.40	180.00	6,709.7	-2,687.5	-818.6	2,761.5	0.00	0.00	0.00
9,800.0	90.40	180.00	6,709.0	-2,787.5	-818.6	2,860.8	0.00	0.00	0.00
9,900.0	90.40	180.00	6,708.3	-2,887.5	-818.6	2,960.2	0.00	0.00	0.00
10,000.0	90.40	180.00	6,707.6	-2,987.5	-818.6	3,059.6	0.00	0.00	0.00
10,100.0	90.40	180.00	6,706.9	-3,087.5	-818.6	3,159.0	0.00	0.00	0.00
10,200.0	90.40	180.00	6,706.2	-3,187.5	-818.6	3,258.4	0.00	0.00	0.00
10,300.0	90.40	180.00	6,705.5	-3,287.5	-818.6	3,357.8	0.00	0.00	0.00
10,400.0	90.40	180.00	6,704.8	-3,387.5	-818.6	3,457.2	0.00	0.00	0.00
10,500.0	90.40	180.00	6,704.1	-3,487.5	-818.6	3,556.5	0.00	0.00	0.00
10,600.0	90.40	180.00	6,703.4	-3,587.5	-818.6	3,655.9	0.00	0.00	0.00
10,700.0	90.40	180.00	6,702.7	-3,687.5	-818.6	3,755.3	0.00	0.00	0.00
10,800.0	90.40	180.00	6,702.0	-3,787.5	-818.6	3,854.7	0.00	0.00	0.00
10,900.0	90.40	180.00	6,701.3	-3,887.5	-818.6	3,954.1	0.00	0.00	0.00
11,000.0	90.40	180.00	6,700.6	-3,987.5	-818.6	4,053.5	0.00	0.00	0.00
11,100.0	90.40	180.00	6,699.9	-4,087.5	-818.6	4,152.9	0.00	0.00	0.00
11,200.0	90.40	180.00	6,699.2	-4,187.5	-818.6	4,252.2	0.00	0.00	0.00
11,300.0	90.40	180.00	6,698.5	-4,287.5	-818.6	4,351.6	0.00	0.00	0.00
11,400.0	90.40	180.00	6,697.8	-4,387.5	-818.6	4,451.0	0.00	0.00	0.00
11,500.0	90.40	180.00	6,697.1	-4,487.5	-818.6	4,550.4	0.00	0.00	0.00
11,600.0	90.40	180.00	6,696.4	-4,587.5	-818.6	4,649.8	0.00	0.00	0.00
11,700.0	90.40	180.00	6,695.7	-4,687.5	-818.6	4,749.2	0.00	0.00	0.00
11,800.0	90.40	180.00	6,695.0	-4,787.5	-818.6	4,848.6	0.00	0.00	0.00
11,900.0	90.40	180.00	6,694.3	-4,887.5	-818.6	4,948.0	0.00	0.00	0.00
12,000.0	90.40	180.00	6,693.6	-4,987.5	-818.6	5,047.3	0.00	0.00	0.00
12,100.0	90.40	180.00	6,692.9	-5,087.5	-818.6	5,146.7	0.00	0.00	0.00
12,200.0	90.40	180.00	6,692.2	-5,187.5	-818.6	5,246.1	0.00	0.00	0.00
12,300.0	90.40	180.00	6,691.5	-5,287.4	-818.6	5,345.5	0.00	0.00	0.00
12,400.0	90.40	180.00	6,690.8	-5,387.4	-818.6	5,444.9	0.00	0.00	0.00
12,500.0	90.40	180.00	6,690.1	-5,487.4	-818.6	5,544.3	0.00	0.00	0.00
12,600.0	90.40	180.00	6,689.4	-5,587.4	-818.6	5,643.7	0.00	0.00	0.00
12,700.0	90.40	180.00	6,688.7	-5,687.4	-818.6	5,743.0	0.00	0.00	0.00
12,800.0	90.40	180.00	6,688.0	-5,787.4	-818.6	5,842.4	0.00	0.00	0.00
12,900.0	90.40	180.00	6,687.3	-5,887.4	-818.6	5,941.8	0.00	0.00	0.00
13,000.0	90.40	180.00	6,686.6	-5,987.4	-818.6	6,041.2	0.00	0.00	0.00
13,100.0	90.40	180.00	6,685.9	-6,087.4	-818.6	6,140.6	0.00	0.00	0.00
13,200.0	90.40	180.00	6,685.3	-6,187.4	-818.6	6,240.0	0.00	0.00	0.00
13,300.0	90.40	180.00	6,684.6	-6,287.4	-818.6	6,339.4	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 #1 (3-14-16)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,400.0	90.40	180.00	6,683.9	-6,387.4	-818.6	6,438.7	0.00	0.00	0.00	
13,500.0	90.40	180.00	6,683.2	-6,487.4	-818.6	6,538.1	0.00	0.00	0.00	
13,600.0	90.40	180.00	6,682.5	-6,587.4	-818.6	6,637.5	0.00	0.00	0.00	
13,700.0	90.40	180.00	6,681.8	-6,687.4	-818.6	6,736.9	0.00	0.00	0.00	
13,800.0	90.40	180.00	6,681.1	-6,787.4	-818.6	6,836.3	0.00	0.00	0.00	
13,900.0	90.40	180.00	6,680.4	-6,887.4	-818.6	6,935.7	0.00	0.00	0.00	
14,000.0	90.40	180.00	6,679.7	-6,987.4	-818.6	7,035.1	0.00	0.00	0.00	
14,100.0	90.40	180.00	6,679.0	-7,087.4	-818.6	7,134.4	0.00	0.00	0.00	
14,200.0	90.40	180.00	6,678.3	-7,187.4	-818.6	7,233.8	0.00	0.00	0.00	
14,300.0	90.40	180.00	6,677.6	-7,287.4	-818.6	7,333.2	0.00	0.00	0.00	
14,381.8	90.40	180.00	6,677.0	-7,369.2	-818.6	7,414.5	0.00	0.00	0.00	
TD at 14381.8 - BHL 2629'FSL & 1902'FEL, Sec.32										

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 2629'FSL & 1902'FI - plan hits target center - Point	0.00	0.00	6,677.0	-7,369.2	-818.6	1,373,789.43	3,258,918.46	40.355730	-104.570935	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name			Casing Diameter (")	Hole Diameter (")
7,274.7	6,726.6	7"			7	8-3/4

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,584.9	3,530.0	Parkman Sandstone		0.00		
4,274.0	4,200.0	Sussex Sandstone		0.00		
6,553.4	6,415.0	Sharon Springs		0.00		
6,755.1	6,560.0	Niobrara A		0.00		
6,924.3	6,650.0	Niobrara B		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 #1 (3-14-16)		

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	
5,231.3	5,130.9	55.6	-89.8	Start Drop -2.00	
6,069.4	5,962.7	465.3	-751.2	KOP #2 - Start Build 7.50	
7,274.7	6,726.6	507.0	-818.6	Start 7107.1 hold at 7274.7 MD	
14,381.8	6,677.0	507.0	-818.6	TD at 14381.8	





# **PETROLEUM DEVELOPMENT CORP DJ Basin**

**SEC.29-T5N-R64W**

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

**Ottenhoff 29R-243**

**Wellbore #1**

**Plan #1 (3-14-16)**

## **Anticollision Report**

**17 March, 2016**



<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (3-14-16)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0 ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	3/17/2016		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	14,381.8	Plan #1 (3-14-16) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
Bell Pad SEC.29-T5N-R64W						
Bell B29-22D - Bell B29-22D - Bell B29-22D	9,162.4	6,774.2	580.2	519.8	9.605	CC, ES
Bell B29-22D - Bell B29-22D - Bell B29-22D	9,300.0	6,773.9	596.3	533.4	9.483	SF
Bell B29-24D - Bell B29-24D - Bell B29-24D	10,617.2	7,031.0	601.9	501.3	5.983	CC, ES
Bell B29-24D - Bell B29-24D - Bell B29-24D	10,700.0	7,031.0	607.5	505.4	5.948	SF
Existing Wells Sec.29-T5N-R64W						
Blake #B 29-10X (Exist.) - Wellbore #1 - Wellbore #1	9,659.9	6,713.0	215.8	26.2	1.138	Level 2, CC, ES, SF
Blake #B29-10 (D&A) - Wellbore #1 - Wellbore #1	9,811.1	6,711.9	142.0	-50.4	0.738	Level 1, CC, ES, SF
Blake #B29-15 (Exist.) - Wellbore #1 - Wellbore #1	11,084.4	6,718.0	136.4	-79.8	0.631	Level 1, CC, ES, SF
Blake B #29-23 (Exist.) - Wellbore #1 - Wellbore #1	10,151.7	6,717.5	10.4	-188.3	0.053	Level 1, CC, ES, SF
Carlson 29-1 (Exist.) - Wellbore #1 - Wellbore #1	8,561.1	6,717.3	43.5	-5.1	0.896	Level 1, CC, ES, SF
DIC Cross #31-32 (P&A) - Wellbore #1 - Wellbore #1	12,421.4	6,716.7	49.0	-192.5	0.203	Level 1, CC, ES, SF
Ottenhoff #29-1 (Exist.) - Wellbore #1 - Wellbore #1	7,142.0	6,713.9	69.1	39.2	2.311	CC, ES, SF
Ottenhoff 41-6B (Exist.) - Wellbore #1 - Wellbore #1	633.6	621.6	399.6	397.4	183.342	CC
Ottenhoff 41-6B (Exist.) - Wellbore #1 - Wellbore #1	700.0	686.1	399.7	397.3	165.826	ES
Ottenhoff 41-6B (Exist.) - Wellbore #1 - Wellbore #1	6,400.0	6,379.6	562.4	528.7	16.661	SF
Pearlman #32-13 (Exist.) - Wellbore #1 - Wellbore #1	13,530.2	6,717.3	181.0	39.1	1.276	Level 3, 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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W						
Ottenhoff 29M-203 - Wellbore #1 - Plan #1 (3-14-16)	200.0	200.0	45.1	44.5	66.947	CC, ES
Ottenhoff 29M-203 - Wellbore #1 - Plan #1 (3-14-16)	14,381.8	14,415.1	699.8	410.6	2.420	SF
Ottenhoff 29M-323 - Wellbore #1 - Plan #1 (3-14-16)	766.3	767.3	15.0	11.8	4.670	CC
Ottenhoff 29M-323 - Wellbore #1 - Plan #1 (3-14-16)	14,381.8	14,506.2	267.0	-9.6	0.965	Level 1, ES, SF
Ottenhoff 29M-423 - Wellbore #1 - Plan #1 (3-14-16)	400.0	400.0	30.1	28.5	19.127	CC, ES
Ottenhoff 29M-423 - Wellbore #1 - Plan #1 (3-14-16)	14,381.8	14,614.5	517.0	248.0	1.922	SF
Ottenhoff 29R-143 - Wellbore #1 - Plan #1 (3-14-16)	1,000.0	1,000.0	15.0	10.8	3.523	CC
Ottenhoff 29R-143 - Wellbore #1 - Plan #1 (3-14-16)	14,381.8	14,249.2	245.5	-35.0	0.875	Level 1, ES, SF
Ottenhoff 29R-203 - Wellbore #1 - Plan #1 (3-14-16)	1,000.0	1,000.0	44.9	40.6	10.504	CC, ES
Ottenhoff 29R-203 - Wellbore #1 - Plan #1 (3-14-16)	14,381.8	14,290.7	707.3	418.5	2.449	SF
Ottenhoff 29R-303 - Wellbore #1 - Plan #1 (3-15-16)	1,000.0	1,000.0	30.1	25.8	7.046	CC, ES
Ottenhoff 29R-303 - Wellbore #1 - Plan #1 (3-15-16)	14,381.8	14,381.9	475.8	189.8	1.664	SF
Ottenhoff 29R-323 - Wellbore #1 - Plan #1 (3-15-16)	800.0	800.0	75.0	71.6	22.231	CC, ES
Ottenhoff 29R-323 - Wellbore #1 - Plan #1 (3-15-16)	1,100.0	1,096.9	81.6	76.9	17.353	SF
Ottenhoff 29R-423 - Wellbore #1 - Plan #1 (3-15-16)	1,000.0	999.0	59.9	55.6	14.035	CC, ES
Ottenhoff 29R-423 - Wellbore #1 - Plan #1 (3-15-16)	14,381.8	14,445.8	940.6	656.0	3.306	SF
Ottenhoff 29U-243 - Wellbore #1 - Plan #1 (3-15-16)	400.0	400.0	90.0	88.4	57.201	CC, ES
Ottenhoff 29U-243 - Wellbore #1 - Plan #1 (3-15-16)	1,000.0	986.0	125.7	121.4	28.772	SF
Ottenhoff 29U-343 - Wellbore #1 - Plan #1 (3-15-16)	200.0	199.0	105.0	104.4	156.306	CC, ES
Ottenhoff 29U-343 - Wellbore #1 - Plan #1 (3-15-16)	1,000.0	971.3	176.3	171.6	38.115	SF

Offset Design		Bell Pad SEC.29-T5N-R64W - Bell B29-22D - Bell B29-22D - Bell B29-22D											Offset Site Error:	0.0 ft
Survey Program: 559-													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)			
8,400.0	6,718.8	6,775.9	6,712.6	34.7	17.3	-88.73	-2,149.8	-238.5	958.0	910.9	47.11	20.333		
8,500.0	6,718.1	6,775.7	6,712.4	36.3	17.3	-88.71	-2,149.8	-238.5	880.5	831.7	48.80	18.045		
8,600.0	6,717.4	6,775.5	6,712.2	38.0	17.3	-88.69	-2,149.8	-238.6	808.0	757.5	50.50	16.000		
8,700.0	6,716.7	6,775.3	6,711.9	39.7	17.3	-88.67	-2,149.8	-238.6	741.9	689.6	52.22	14.205		
8,800.0	6,716.0	6,775.0	6,711.7	41.4	17.3	-88.64	-2,149.8	-238.6	684.0	630.1	53.97	12.675		
8,900.0	6,715.3	6,774.8	6,711.5	43.1	17.3	-88.62	-2,149.8	-238.6	636.7	581.0	55.72	11.426		
9,000.0	6,714.6	6,774.6	6,711.3	44.8	17.3	-88.60	-2,149.8	-238.6	602.4	544.9	57.50	10.478		
9,100.0	6,713.9	6,774.4	6,711.0	46.5	17.3	-88.58	-2,149.8	-238.6	583.5	524.2	59.28	9.843		
9,162.4	6,713.4	6,774.2	6,710.9	47.6	17.3	-88.56	-2,149.8	-238.6	580.2	519.8	60.40	9.605	CC, ES	
9,200.0	6,713.2	6,774.1	6,710.8	48.3	17.3	-88.55	-2,149.8	-238.6	581.4	520.3	61.07	9.519		
9,300.0	6,712.5	6,773.9	6,710.6	50.1	17.3	-88.53	-2,149.8	-238.6	596.3	533.4	62.88	9.483	SF	
9,400.0	6,711.8	6,773.7	6,710.3	51.8	17.3	-88.51	-2,149.8	-238.6	626.9	562.2	64.69	9.692		
9,500.0	6,711.1	6,773.4	6,710.1	53.6	17.3	-88.49	-2,149.8	-238.6	671.2	604.7	66.51	10.093		
9,600.0	6,710.4	6,773.2	6,709.9	55.4	17.3	-88.46	-2,149.8	-238.6	726.7	658.4	68.33	10.635		
9,700.0	6,709.7	6,773.0	6,709.7	57.2	17.3	-88.44	-2,149.8	-238.6	791.0	720.8	70.17	11.273		
9,800.0	6,709.0	6,772.8	6,709.4	59.0	17.3	-88.42	-2,149.8	-238.6	862.1	790.1	72.00	11.973		
9,900.0	6,708.3	6,772.5	6,709.2	60.8	17.3	-88.40	-2,149.8	-238.6	938.4	864.6	73.85	12.708		

<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<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
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,900.0	6,708.3	7,031.0	6,724.7	60.8	29.1	90.90	-3,604.7	-1,420.3	936.2	849.0	87.25	10.730		
10,000.0	6,707.6	7,031.0	6,724.7	62.7	29.1	90.90	-3,604.7	-1,420.3	862.0	772.9	89.10	9.675		
10,100.0	6,706.9	7,031.0	6,724.7	64.5	29.1	90.90	-3,604.7	-1,420.3	793.5	702.6	90.95	8.725		
10,200.0	6,706.2	7,031.0	6,724.7	66.3	29.1	90.90	-3,604.7	-1,420.3	732.3	639.5	92.81	7.890		
10,300.0	6,705.5	7,031.0	6,724.7	68.2	29.1	90.90	-3,604.7	-1,420.3	680.3	585.6	94.67	7.186		
10,400.0	6,704.8	7,031.0	6,724.7	70.0	29.1	90.90	-3,604.7	-1,420.3	639.8	543.3	96.54	6.628		
10,500.0	6,704.1	7,031.0	6,724.7	71.8	29.1	90.90	-3,604.7	-1,420.3	613.2	514.8	98.40	6.231		
10,600.0	6,703.4	7,031.0	6,724.7	73.7	29.1	90.90	-3,604.7	-1,420.3	602.1	501.8	100.27	6.005		
10,617.2	6,703.3	7,031.0	6,724.7	74.0	29.1	90.90	-3,604.7	-1,420.3	601.9	501.3	100.59	5.983 CC, ES		
10,700.0	6,702.7	7,031.0	6,724.7	75.5	29.1	90.90	-3,604.7	-1,420.3	607.5	505.4	102.14	5.948 SF		
10,800.0	6,702.0	7,031.0	6,724.7	77.4	29.1	90.90	-3,604.7	-1,420.3	629.0	525.0	104.02	6.047		
10,900.0	6,701.3	7,031.0	6,724.7	79.3	29.1	90.90	-3,604.7	-1,420.3	665.0	559.1	105.90	6.280		
11,000.0	6,700.6	7,031.0	6,724.7	81.1	29.1	90.90	-3,604.7	-1,420.3	713.3	605.5	107.77	6.619		
11,100.0	6,699.9	7,031.0	6,724.8	83.0	29.1	90.90	-3,604.7	-1,420.3	771.6	662.0	109.66	7.037		
11,200.0	6,699.2	7,031.1	6,724.8	84.8	29.1	90.90	-3,604.7	-1,420.3	837.8	726.3	111.54	7.512		
11,300.0	6,698.5	7,031.1	6,724.8	86.7	29.1	90.90	-3,604.7	-1,420.3	910.2	796.8	113.42	8.025		
11,400.0	6,697.8	7,031.1	6,724.8	88.6	29.1	90.90	-3,604.7	-1,420.3	987.5	872.2	115.31	8.564		

<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<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	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)				
8,700.0	6,716.7	6,719.7	6,719.7	39.7	134.4	91.78	-2,647.4	-1,034.4	983.8	811.5	172.34	5.709			
8,800.0	6,716.0	6,719.0	6,719.0	41.4	134.4	91.59	-2,647.4	-1,034.4	886.5	712.5	174.09	5.092			
8,900.0	6,715.3	6,718.3	6,718.3	43.1	134.4	91.41	-2,647.4	-1,034.4	789.9	614.1	175.86	4.492			
9,000.0	6,714.6	6,717.6	6,717.6	44.8	134.4	91.22	-2,647.4	-1,034.4	694.3	516.6	177.65	3.908			
9,100.0	6,713.9	6,716.9	6,716.9	46.5	134.3	91.04	-2,647.4	-1,034.4	600.0	420.6	179.44	3.344			
9,200.0	6,713.2	6,716.2	6,716.2	48.3	134.3	90.85	-2,647.4	-1,034.4	508.0	326.8	181.24	2.803			
9,300.0	6,712.5	6,715.5	6,715.5	50.1	134.3	90.67	-2,647.4	-1,034.4	419.6	236.6	183.05	2.292			
9,400.0	6,711.8	6,714.8	6,714.8	51.8	134.3	90.48	-2,647.4	-1,034.4	337.8	152.9	184.86	1.827			
9,500.0	6,711.1	6,714.1	6,714.1	53.6	134.3	90.30	-2,647.4	-1,034.4	268.6	81.9	186.68	1.439	Level 3		
9,600.0	6,710.4	6,713.4	6,713.4	55.4	134.3	90.11	-2,647.4	-1,034.4	224.0	35.4	188.51	1.188	Level 2		
9,659.9	6,710.0	6,713.0	6,713.0	56.5	134.3	90.00	-2,647.4	-1,034.4	215.8	26.2	189.60	1.138	Level 2, CC, ES, SF		
9,700.0	6,709.7	6,712.7	6,712.7	57.2	134.3	89.93	-2,647.4	-1,034.4	219.5	29.2	190.34	1.153	Level 2		
9,800.0	6,709.0	6,712.0	6,712.0	59.0	134.2	89.74	-2,647.4	-1,034.4	257.3	65.1	192.17	1.339	Level 3		
9,900.0	6,708.3	6,711.3	6,711.3	60.8	134.2	89.55	-2,647.4	-1,034.4	322.8	128.8	194.01	1.664			
10,000.0	6,707.6	6,710.6	6,710.6	62.7	134.2	89.37	-2,647.4	-1,034.4	402.8	206.9	195.85	2.057			
10,100.0	6,706.9	6,709.9	6,709.9	64.5	134.2	89.18	-2,647.4	-1,034.4	490.2	292.5	197.69	2.479			
10,200.0	6,706.2	6,709.2	6,709.2	66.3	134.2	89.00	-2,647.4	-1,034.4	581.6	382.1	199.53	2.915			
10,300.0	6,705.5	6,708.5	6,708.5	68.2	134.2	88.81	-2,647.4	-1,034.4	675.5	474.1	201.37	3.354			
10,400.0	6,704.8	6,707.8	6,707.8	70.0	134.2	88.63	-2,647.4	-1,034.4	770.9	567.7	203.22	3.793			
10,500.0	6,704.1	6,707.1	6,707.1	71.8	134.1	88.44	-2,647.4	-1,034.4	867.4	662.3	205.06	4.230			
10,600.0	6,703.4	6,706.4	6,706.4	73.7	134.1	88.26	-2,647.4	-1,034.4	964.5	757.6	206.91	4.662			

<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<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							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
8,900.0	6,715.3	6,718.3	6,718.3	43.1	134.4	92.57	-2,798.6	-960.5	922.1	746.4	175.68	5.248		
9,000.0	6,714.6	6,717.6	6,717.6	44.8	134.4	92.28	-2,798.6	-960.5	823.4	645.9	177.49	4.639		
9,100.0	6,713.9	6,716.9	6,716.9	46.5	134.3	92.00	-2,798.6	-960.5	725.1	545.8	179.31	4.044		
9,200.0	6,713.2	6,716.2	6,716.2	48.3	134.3	91.72	-2,798.6	-960.5	627.4	446.2	181.13	3.464		
9,300.0	6,712.5	6,715.5	6,715.5	50.1	134.3	91.44	-2,798.6	-960.5	530.4	347.5	182.96	2.899		
9,400.0	6,711.8	6,714.8	6,714.8	51.8	134.3	91.16	-2,798.6	-960.5	434.9	250.1	184.80	2.353		
9,500.0	6,711.1	6,714.1	6,714.1	53.6	134.3	90.88	-2,798.6	-960.5	342.0	155.3	186.63	1.832		
9,600.0	6,710.4	6,713.4	6,713.4	55.4	134.3	90.59	-2,798.6	-960.5	254.4	65.9	188.47	1.350 Level 3		
9,700.0	6,709.7	6,712.7	6,712.7	57.2	134.3	90.31	-2,798.6	-960.5	180.3	-10.0	190.31	0.947 Level 1		
9,800.0	6,709.0	6,712.0	6,712.0	59.0	134.2	90.03	-2,798.6	-960.5	142.4	-49.8	192.16	0.741 Level 1		
9,811.1	6,708.9	6,711.9	6,711.9	59.2	134.2	90.00	-2,798.6	-960.5	142.0	-50.4	192.36	0.738 Level 1, CC, ES, SF		
9,900.0	6,708.3	6,711.3	6,711.3	60.8	134.2	89.75	-2,798.6	-960.5	167.5	-26.5	194.00	0.863 Level 1		
10,000.0	6,707.6	6,710.6	6,710.6	62.7	134.2	89.47	-2,798.6	-960.5	236.3	40.5	195.84	1.207 Level 2		
10,100.0	6,706.9	6,709.9	6,709.9	64.5	134.2	89.19	-2,798.6	-960.5	321.9	124.2	197.69	1.628		
10,200.0	6,706.2	6,709.2	6,709.2	66.3	134.2	88.90	-2,798.6	-960.5	414.0	214.5	199.53	2.075		
10,300.0	6,705.5	6,708.5	6,708.5	68.2	134.2	88.62	-2,798.6	-960.5	509.1	307.7	201.37	2.528		
10,400.0	6,704.8	6,707.8	6,707.8	70.0	134.2	88.34	-2,798.6	-960.5	605.8	402.6	203.21	2.981		
10,500.0	6,704.1	6,707.1	6,707.1	71.8	134.1	88.06	-2,798.6	-960.5	703.4	498.3	205.04	3.430		
10,600.0	6,703.4	6,706.4	6,706.4	73.7	134.1	87.78	-2,798.6	-960.5	801.6	594.7	206.88	3.875		
10,700.0	6,702.7	6,705.7	6,705.7	75.5	134.1	87.50	-2,798.6	-960.5	900.1	691.4	208.71	4.313		
10,800.0	6,702.0	6,705.0	6,705.0	77.4	134.1	87.22	-2,798.6	-960.5	999.0	788.5	210.53	4.745		

<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<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							
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	
10,100.0	6,706.9	6,724.9	6,724.9	64.5	134.5	92.88	-4,071.9	-955.0	993.8	796.2	197.58	5.030		
10,200.0	6,706.2	6,724.2	6,724.2	66.3	134.5	92.59	-4,071.9	-955.0	894.8	695.3	199.49	4.486		
10,300.0	6,705.5	6,723.5	6,723.5	68.2	134.5	92.30	-4,071.9	-955.0	796.1	594.8	201.39	3.953		
10,400.0	6,704.8	6,722.8	6,722.8	70.0	134.5	92.01	-4,071.9	-955.0	697.8	494.6	203.29	3.433		
10,500.0	6,704.1	6,722.1	6,722.1	71.8	134.4	91.71	-4,071.9	-955.0	600.1	394.9	205.19	2.925		
10,600.0	6,703.4	6,721.4	6,721.4	73.7	134.4	91.42	-4,071.9	-955.0	503.2	296.1	207.08	2.430		
10,700.0	6,702.7	6,720.7	6,720.7	75.5	134.4	91.13	-4,071.9	-955.0	407.9	198.9	208.98	1.952		
10,800.0	6,702.0	6,720.0	6,720.0	77.4	134.4	90.83	-4,071.9	-955.0	315.4	104.5	210.87	1.496	Level 3	
10,900.0	6,701.3	6,719.3	6,719.3	79.3	134.4	90.54	-4,071.9	-955.0	229.4	16.6	212.76	1.078	Level 2	
11,000.0	6,700.6	6,718.6	6,718.6	81.1	134.4	90.25	-4,071.9	-955.0	160.4	-54.2	214.65	0.747	Level 1	
11,084.4	6,700.0	6,718.0	6,718.0	82.7	134.4	90.00	-4,071.9	-955.0	136.4	-79.8	216.23	0.631	Level 1, CC, ES, SF	
11,100.0	6,699.9	6,717.9	6,717.9	83.0	134.4	89.95	-4,071.9	-955.0	137.3	-79.2	216.53	0.634	Level 1	
11,200.0	6,699.2	6,717.2	6,717.2	84.8	134.3	89.66	-4,071.9	-955.0	178.8	-39.6	218.41	0.819	Level 1	
11,300.0	6,698.5	6,716.5	6,716.5	86.7	134.3	89.37	-4,071.9	-955.0	255.1	34.9	220.28	1.158	Level 2	
11,400.0	6,697.8	6,715.8	6,715.8	88.6	134.3	89.07	-4,071.9	-955.0	343.8	121.7	222.15	1.548		
11,500.0	6,697.1	6,715.1	6,715.1	90.5	134.3	88.78	-4,071.9	-955.0	437.4	213.4	224.02	1.953		
11,600.0	6,696.4	6,714.4	6,714.4	92.3	134.3	88.49	-4,071.9	-955.0	533.3	307.5	225.88	2.361		
11,700.0	6,695.7	6,713.7	6,713.7	94.2	134.3	88.20	-4,071.9	-955.0	630.5	402.8	227.74	2.769		
11,800.0	6,695.0	6,713.0	6,713.0	96.1	134.3	87.90	-4,071.9	-955.0	728.5	498.9	229.59	3.173		
11,900.0	6,694.3	6,712.3	6,712.3	98.0	134.2	87.61	-4,071.9	-955.0	826.9	595.5	231.44	3.573		
12,000.0	6,693.6	6,711.6	6,711.6	99.8	134.2	87.32	-4,071.9	-955.0	925.7	692.4	233.28	3.968		

<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Blake B #29-23 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7595-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
9,200.0	6,713.2	6,724.2	6,724.2	48.3	134.5	122.45	-3,139.2	-829.0	951.8	798.8	152.99	6.221		
9,300.0	6,712.5	6,723.5	6,723.5	50.1	134.5	119.64	-3,139.2	-829.0	851.8	692.7	159.05	5.355		
9,400.0	6,711.8	6,722.8	6,722.8	51.8	134.5	116.67	-3,139.2	-829.0	751.8	586.7	165.08	4.554		
9,500.0	6,711.1	6,722.1	6,722.1	53.6	134.4	113.53	-3,139.2	-829.0	651.8	480.8	170.97	3.812		
9,600.0	6,710.4	6,721.4	6,721.4	55.4	134.4	110.24	-3,139.2	-829.0	551.8	375.2	176.64	3.124		
9,700.0	6,709.7	6,720.7	6,720.7	57.2	134.4	106.79	-3,139.2	-829.0	451.9	269.9	181.96	2.483		
9,800.0	6,709.0	6,720.0	6,720.0	59.0	134.4	103.22	-3,139.2	-829.0	351.9	165.1	186.83	1.883		
9,900.0	6,708.3	6,719.3	6,719.3	60.8	134.4	99.55	-3,139.2	-829.0	252.0	60.8	191.13	1.318	Level 3	
10,000.0	6,707.6	6,718.6	6,718.6	62.7	134.4	95.79	-3,139.2	-829.0	152.1	-42.7	194.75	0.781	Level 1	
10,100.0	6,706.9	6,717.9	6,717.9	64.5	134.4	91.98	-3,139.2	-829.0	52.8	-144.8	197.61	0.267	Level 1	
10,151.7	6,706.5	6,717.5	6,717.5	65.4	134.4	90.00	-3,139.2	-829.0	10.4	-188.3	198.78	0.053	Level 1, CC, ES, SF	
10,200.0	6,706.2	6,717.2	6,717.2	66.3	134.3	88.15	-3,139.2	-829.0	49.4	-150.3	199.66	0.247	Level 1	
10,300.0	6,705.5	6,716.5	6,716.5	68.2	134.3	84.34	-3,139.2	-829.0	148.6	-52.2	200.87	0.740	Level 1	
10,400.0	6,704.8	6,715.8	6,715.8	70.0	134.3	80.58	-3,139.2	-829.0	248.5	47.2	201.25	1.235	Level 2	
10,500.0	6,704.1	6,715.1	6,715.1	71.8	134.3	76.90	-3,139.2	-829.0	348.4	147.6	200.84	1.735		
10,600.0	6,703.4	6,714.4	6,714.4	73.7	134.3	73.33	-3,139.2	-829.0	448.4	248.7	199.71	2.245		
10,700.0	6,702.7	6,713.7	6,713.7	75.5	134.3	69.88	-3,139.2	-829.0	548.3	350.4	197.94	2.770		
10,800.0	6,702.0	6,713.0	6,713.0	77.4	134.3	66.58	-3,139.2	-829.0	648.3	452.7	195.65	3.314		
10,900.0	6,701.3	6,712.3	6,712.3	79.3	134.2	63.44	-3,139.2	-829.0	748.3	555.4	192.92	3.879		
11,000.0	6,700.6	6,711.6	6,711.6	81.1	134.2	60.46	-3,139.2	-829.0	848.3	658.4	189.86	4.468		
11,100.0	6,699.9	6,710.9	6,710.9	83.0	134.2	57.64	-3,139.2	-829.0	948.3	761.7	186.56	5.083		



<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
7,600.0	6,724.3	6,706.6	6,705.4	23.6	13.1	79.39	-1,548.5	-862.6	962.1	927.9	34.21	28.120			
7,700.0	6,723.6	6,707.7	6,706.5	24.7	13.1	80.78	-1,548.5	-862.5	862.2	826.7	35.52	24.274			
7,800.0	6,722.9	6,708.8	6,707.6	25.9	13.1	82.18	-1,548.5	-862.5	762.3	725.4	36.90	20.661			
7,900.0	6,722.3	6,710.0	6,708.7	27.2	13.1	83.59	-1,548.6	-862.4	662.5	624.2	38.34	17.282			
8,000.0	6,721.6	6,711.1	6,709.8	28.6	13.1	85.02	-1,548.6	-862.4	562.8	523.0	39.82	14.132			
8,100.0	6,720.9	6,712.2	6,710.9	30.1	13.1	86.46	-1,548.6	-862.3	463.2	421.8	41.35	11.202			
8,200.0	6,720.2	6,713.3	6,712.0	31.6	13.1	87.90	-1,548.6	-862.2	363.7	320.8	42.90	8.479			
8,300.0	6,719.5	6,714.4	6,713.1	33.1	13.1	89.35	-1,548.6	-862.2	264.7	220.3	44.46	5.954			
8,400.0	6,718.8	6,715.5	6,714.3	34.7	13.1	90.81	-1,548.7	-862.1	166.9	120.9	46.04	3.625			
8,500.0	6,718.1	6,716.6	6,715.4	36.3	13.1	92.27	-1,548.7	-862.0	75.0	27.4	47.62	1.576			
8,561.1	6,717.6	6,717.3	6,716.0	37.4	13.1	93.16	-1,548.7	-862.0	43.5	-5.1	48.59	0.896	Level 1, CC, ES, SF		
8,600.0	6,717.4	6,717.7	6,716.5	38.0	13.1	93.73	-1,548.7	-862.0	58.3	9.2	49.19	1.186	Level 2		
8,700.0	6,716.7	6,718.8	6,717.6	39.7	13.1	95.19	-1,548.7	-861.9	145.5	94.8	50.76	2.867			
8,800.0	6,716.0	6,719.9	6,718.7	41.4	13.1	96.65	-1,548.7	-861.9	242.8	190.5	52.31	4.641			
8,900.0	6,715.3	6,721.1	6,719.8	43.1	13.1	98.10	-1,548.8	-861.8	341.6	287.8	53.84	6.346			
9,000.0	6,714.6	6,722.2	6,720.9	44.8	13.1	99.55	-1,548.8	-861.7	441.0	385.6	55.34	7.968			
9,100.0	6,713.9	6,723.3	6,722.0	46.5	13.1	100.99	-1,548.8	-861.7	540.6	483.8	56.82	9.514			
9,200.0	6,713.2	6,724.4	6,723.1	48.3	13.1	102.41	-1,548.8	-861.6	640.3	582.0	58.27	10.989			
9,300.0	6,712.5	6,725.5	6,724.2	50.1	13.1	103.83	-1,548.8	-861.6	740.1	680.4	59.68	12.400			
9,400.0	6,711.8	6,726.6	6,725.3	51.8	13.1	105.24	-1,548.9	-861.5	839.9	778.9	61.06	13.755			
9,500.0	6,711.1	6,727.7	6,726.4	53.6	13.1	106.62	-1,548.9	-861.4	939.8	877.4	62.41	15.060			

<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<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							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
11,500.0	6,697.1	6,723.1	6,723.1	90.5	134.5	97.48	-5,408.9	-867.5	922.7	700.7	222.04	4.156		
11,600.0	6,696.4	6,722.4	6,722.4	92.3	134.4	96.68	-5,408.9	-867.5	822.9	598.6	224.30	3.669		
11,700.0	6,695.7	6,721.7	6,721.7	94.2	134.4	95.87	-5,408.9	-867.5	723.1	496.6	226.53	3.192		
11,800.0	6,695.0	6,721.0	6,721.0	96.1	134.4	95.06	-5,408.9	-867.5	623.4	394.6	228.73	2.725		
11,900.0	6,694.3	6,720.3	6,720.3	98.0	134.4	94.25	-5,408.9	-867.5	523.7	292.8	230.89	2.268		
12,000.0	6,693.6	6,719.6	6,719.6	99.8	134.4	93.44	-5,408.9	-867.5	424.3	191.3	233.01	1.821		
12,100.0	6,692.9	6,718.9	6,718.9	101.7	134.4	92.62	-5,408.9	-867.5	325.1	90.1	235.08	1.383	Level 3	
12,200.0	6,692.2	6,718.2	6,718.2	103.6	134.4	91.81	-5,408.9	-867.5	226.8	-10.3	237.12	0.956	Level 1	
12,300.0	6,691.5	6,717.5	6,717.5	105.5	134.4	90.99	-5,408.9	-867.5	130.9	-108.2	239.12	0.548	Level 1	
12,400.0	6,690.8	6,716.8	6,716.8	107.4	134.3	90.18	-5,408.9	-867.5	53.5	-187.6	241.07	0.222	Level 1	
12,421.4	6,690.7	6,716.7	6,716.7	107.8	134.3	90.00	-5,408.9	-867.5	49.0	-192.5	241.48	0.203	Level 1, CC, ES, SF	
12,500.0	6,690.1	6,716.1	6,716.1	109.3	134.3	89.36	-5,408.9	-867.5	92.6	-150.4	242.98	0.381	Level 1	
12,600.0	6,689.4	6,715.4	6,715.4	111.2	134.3	88.54	-5,408.9	-867.5	185.2	-59.7	244.84	0.756	Level 1	
12,700.0	6,688.7	6,714.7	6,714.7	113.1	134.3	87.73	-5,408.9	-867.5	282.8	36.2	246.66	1.147	Level 2	
12,800.0	6,688.0	6,714.0	6,714.0	114.9	134.3	86.91	-5,408.9	-867.5	381.7	133.3	248.43	1.536		
12,900.0	6,687.3	6,713.3	6,713.3	116.8	134.3	86.10	-5,408.9	-867.5	481.0	230.9	250.15	1.923		
13,000.0	6,686.6	6,712.6	6,712.6	118.7	134.3	85.29	-5,408.9	-867.5	580.6	328.8	251.82	2.306		
13,100.0	6,685.9	6,711.9	6,711.9	120.6	134.2	84.48	-5,408.9	-867.5	680.3	426.9	253.44	2.684		
13,200.0	6,685.3	6,711.3	6,711.3	122.5	134.2	83.67	-5,408.9	-867.5	780.1	525.1	255.01	3.059		
13,300.0	6,684.6	6,710.6	6,710.6	124.4	134.2	82.86	-5,408.9	-867.5	879.9	623.4	256.53	3.430		
13,400.0	6,683.9	6,709.9	6,709.9	126.3	134.2	82.06	-5,408.9	-867.5	979.8	721.8	258.01	3.797		

<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<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							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-97.25	-120.6	-947.9	955.5					
100.0	100.0	91.0	91.0	0.1	0.1	-97.24	-120.4	-948.0	955.7	955.4	0.23	4,097.257		
200.0	200.0	195.2	195.2	0.3	0.4	-97.22	-120.1	-948.2	955.8	955.1	0.69	1,383.879		
228.7	228.7	222.7	222.7	0.4	0.4	-97.21	-120.0	-948.2	955.8	954.9	0.82	1,172.663		
300.0	300.0	289.7	289.7	0.6	0.6	-97.20	-119.9	-948.4	955.9	954.8	1.12	854.141		
400.0	400.0	389.1	389.1	0.8	0.8	-97.20	-119.8	-948.9	956.4	954.9	1.57	607.824		
500.0	500.0	495.7	495.7	1.0	1.0	-97.17	-119.4	-949.1	956.6	954.6	2.04	469.630		
529.8	529.8	523.8	523.8	1.1	1.1	-97.16	-119.3	-949.1	956.6	954.4	2.17	441.144		
600.0	600.0	588.5	588.5	1.2	1.2	-97.14	-118.9	-949.4	956.8	954.3	2.48	386.530		
700.0	700.0	694.6	694.6	1.5	1.5	-97.10	-118.4	-949.8	957.1	954.2	2.95	323.985		
719.8	719.8	713.8	713.8	1.5	1.5	-97.10	-118.2	-949.8	957.1	954.1	3.05	314.218		
800.0	800.0	788.9	788.9	1.7	1.7	-97.06	-117.6	-950.1	957.3	953.9	3.41	280.521		
900.0	900.0	894.7	894.7	1.9	2.0	-97.00	-116.7	-950.5	957.6	953.7	3.90	245.459		
920.2	920.2	914.2	914.2	2.0	2.0	-96.99	-116.5	-950.5	957.6	953.6	4.00	239.675		
1,000.0	1,000.0	988.2	988.2	2.1	2.2	-96.95	-115.9	-950.8	957.9	953.5	4.36	219.663		
1,100.0	1,100.0	1,089.7	1,089.7	2.4	2.5	-38.73	-115.2	-951.5	957.4	952.6	4.84	197.740		
1,200.0	1,199.9	1,192.5	1,192.4	2.6	2.8	-38.86	-114.4	-951.9	954.7	949.4	5.32	179.518		
1,300.0	1,299.7	1,303.5	1,303.4	2.8	3.0	-39.11	-113.1	-951.6	949.2	943.4	5.77	164.496		
1,400.0	1,399.3	1,400.0	1,400.0	3.0	3.2	-39.47	-112.1	-951.0	941.4	935.2	6.18	152.228		
1,500.0	1,498.6	1,499.9	1,499.9	3.3	3.4	-39.99	-111.4	-950.5	931.7	925.1	6.59	141.476		
1,600.0	1,597.5	1,600.1	1,600.0	3.6	3.5	-40.66	-110.9	-949.8	919.9	912.9	6.98	131.823		
1,700.0	1,696.1	1,699.8	1,699.8	3.9	3.7	-41.46	-110.1	-948.9	906.0	898.6	7.41	122.253		
1,800.0	1,794.2	1,797.9	1,797.8	4.2	3.9	-42.44	-109.8	-947.8	890.3	882.5	7.81	113.939		
1,900.0	1,891.7	1,892.6	1,892.6	4.6	4.0	-43.56	-109.8	-947.0	873.1	864.8	8.24	105.910		
2,000.0	1,988.9	1,991.2	1,991.2	5.0	4.1	-44.65	-109.7	-946.1	855.2	846.5	8.72	98.087		
2,100.0	2,086.2	2,089.8	2,089.7	5.4	4.3	-45.81	-109.9	-945.0	837.5	828.3	9.20	91.052		
2,200.0	2,183.4	2,180.8	2,180.7	5.8	4.4	-46.91	-110.0	-944.2	820.3	810.6	9.68	84.740		
2,300.0	2,280.6	2,282.1	2,282.0	6.3	4.5	-48.17	-110.0	-943.6	803.8	793.6	10.21	78.698		
2,400.0	2,377.9	2,376.2	2,376.1	6.7	4.7	-49.37	-109.8	-942.9	787.3	776.5	10.81	72.844		
2,500.0	2,475.1	2,470.5	2,470.4	7.2	4.9	-50.62	-109.6	-942.6	771.7	760.3	11.39	67.740		
2,600.0	2,572.3	2,567.6	2,567.5	7.7	5.0	-51.98	-109.8	-942.4	756.7	744.8	11.94	63.361		
2,700.0	2,669.6	2,666.5	2,666.4	8.1	5.2	-53.44	-110.1	-942.1	742.1	729.6	12.51	59.297		
2,800.0	2,766.8	2,766.6	2,766.5	8.6	5.3	-54.97	-110.4	-941.3	727.6	714.4	13.15	55.350		
2,900.0	2,864.0	2,864.4	2,864.3	9.1	5.5	-56.50	-110.2	-940.5	713.3	699.5	13.83	51.583		
3,000.0	2,961.3	2,958.4	2,958.3	9.6	5.8	-57.99	-109.7	-940.0	699.7	685.2	14.53	48.167		
3,100.0	3,058.5	3,056.2	3,056.1	10.0	6.0	-59.62	-109.6	-939.7	687.0	671.8	15.24	45.068		
3,200.0	3,155.7	3,155.0	3,154.9	10.5	6.2	-61.34	-109.5	-938.9	674.5	658.5	15.98	42.205		
3,300.0	3,253.0	3,253.4	3,253.3	11.0	6.4	-63.10	-109.1	-938.3	662.6	645.8	16.74	39.582		
3,400.0	3,350.2	3,352.2	3,352.0	11.5	6.7	-64.86	-107.9	-937.7	651.0	633.4	17.51	37.169		
3,500.0	3,447.4	3,449.8	3,449.7	12.0	6.9	-66.66	-106.7	-937.0	639.9	621.6	18.29	34.977		
3,600.0	3,544.7	3,548.6	3,548.4	12.5	7.2	-68.52	-105.2	-936.4	629.4	610.3	19.09	32.971		
3,700.0	3,641.9	3,648.1	3,647.9	13.0	7.4	-70.45	-103.5	-935.5	619.2	599.3	19.89	31.127		
3,800.0	3,739.1	3,746.5	3,746.3	13.5	7.7	-72.44	-101.7	-934.3	609.4	588.7	20.70	29.440		
3,900.0	3,836.4	3,843.1	3,842.9	14.0	7.9	-74.46	-100.1	-933.0	600.4	578.9	21.51	27.914		
4,000.0	3,933.6	3,937.3	3,937.1	14.5	8.2	-76.48	-98.5	-931.9	592.4	570.1	22.31	26.554		
4,100.0	4,030.8	4,030.4	4,030.1	14.9	8.4	-78.51	-97.5	-931.4	586.0	562.9	23.10	25.364		
4,200.0	4,128.1	4,125.8	4,125.6	15.4	8.6	-80.68	-97.1	-930.8	580.9	557.0	23.90	24.307		
4,300.0	4,225.3	4,222.2	4,222.0	15.9	8.9	-82.90	-96.7	-930.4	576.9	552.2	24.68	23.375		
4,400.0	4,322.5	4,316.0	4,315.8	16.4	9.0	-85.06	-96.5	-930.4	574.2	548.8	25.38	22.624		
4,500.0	4,419.8	4,410.0	4,409.8	16.9	9.1	-87.23	-96.8	-930.7	573.0	547.0	25.98	22.054		
4,531.2	4,450.2	4,439.5	4,439.3	17.1	9.1	-87.92	-96.9	-930.9	573.0	546.8	26.16	21.902		

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<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		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
4,600.0	4,517.0	4,504.3	4,504.0	17.4	9.1	-89.42	-97.4	-931.4	573.3	546.7	26.54	21.598			
4,700.0	4,614.3	4,593.4	4,593.2	17.9	9.2	-91.54	-99.1	-931.8	575.5	548.4	27.10	21.234			
4,800.0	4,711.5	4,683.0	4,682.6	18.4	9.2	-93.75	-102.4	-932.0	579.9	552.3	27.65	20.971			
4,900.0	4,808.7	4,778.5	4,778.1	18.9	9.3	-96.11	-106.7	-932.2	586.3	558.1	28.20	20.790			
5,000.0	4,906.0	4,878.0	4,877.5	19.4	9.4	-98.52	-111.1	-932.2	593.5	564.8	28.73	20.655			
5,100.0	5,003.2	4,975.6	4,975.0	19.9	9.5	-100.80	-114.9	-932.3	601.3	572.1	29.25	20.556			
5,200.0	5,100.4	5,077.3	5,076.6	20.4	9.6	-103.15	-118.7	-932.0	609.8	580.0	29.76	20.489			
5,300.0	5,197.8	5,182.1	5,181.4	20.9	9.7	-105.57	-121.5	-931.0	617.9	587.6	30.22	20.443			
5,400.0	5,296.0	5,288.7	5,288.0	21.2	9.9	-107.67	-123.0	-929.6	624.5	593.9	30.61	20.403			
5,500.0	5,394.7	5,385.4	5,384.6	21.5	10.1	-109.29	-123.8	-927.8	630.0	599.0	30.98	20.337			
5,600.0	5,493.9	5,484.8	5,484.0	21.7	10.3	-110.73	-125.1	-924.7	635.0	603.6	31.32	20.273			
5,700.0	5,593.5	5,583.4	5,582.5	22.0	10.5	-111.90	-126.5	-920.8	638.9	607.3	31.64	20.196			
5,800.0	5,693.3	5,679.1	5,678.1	22.1	10.7	-112.71	-128.1	-917.6	642.0	610.1	31.92	20.112			
5,900.0	5,793.3	5,779.1	5,778.1	22.2	10.9	-113.17	-130.0	-914.9	644.3	612.1	32.20	20.012			
6,000.0	5,893.3	5,882.1	5,881.0	22.4	11.1	-117.62	-131.6	-912.6	645.6	613.1	32.50	19.862			
6,100.0	5,993.3	5,989.4	5,988.3	22.5	11.3	8.19	-132.5	-910.4	645.4	612.6	32.79	19.683			
6,200.0	6,092.7	6,091.1	6,090.0	22.5	11.6	8.21	-132.4	-907.8	634.6	602.0	32.58	19.477			
6,300.0	6,189.8	6,190.7	6,189.6	22.5	11.8	8.53	-132.1	-904.9	610.7	578.9	31.84	19.182			
6,400.0	6,283.1	6,285.4	6,284.2	22.4	12.0	9.26	-131.5	-902.1	574.2	543.6	30.58	18.776			
6,500.0	6,370.9	6,372.7	6,371.5	22.2	12.3	10.51	-130.8	-899.4	525.9	497.0	28.86	18.224			
6,600.0	6,451.7	6,451.7	6,450.4	22.0	12.5	12.58	-130.3	-896.8	466.9	440.1	26.77	17.438			
6,700.0	6,524.1	6,522.8	6,521.5	21.8	12.6	16.08	-130.1	-894.3	398.5	373.9	24.58	16.213			
6,800.0	6,586.9	6,585.5	6,584.1	21.6	12.8	22.44	-130.0	-892.1	321.9	299.0	22.90	14.059			
6,900.0	6,639.1	6,637.4	6,636.0	21.4	12.9	34.74	-129.9	-890.3	239.1	215.8	23.28	10.268			
7,000.0	6,679.6	6,677.8	6,676.4	21.3	13.0	57.59	-129.8	-888.9	153.7	126.5	27.25	5.642			
7,100.0	6,707.9	6,705.9	6,704.4	21.2	13.1	84.63	-129.7	-887.9	80.5	50.5	29.93	2.689			
7,142.0	6,716.0	6,713.9	6,712.5	21.2	13.1	92.03	-129.7	-887.6	69.1	39.2	29.90	2.311	CC, ES, SF		
7,200.0	6,723.5	6,721.2	6,719.8	21.2	13.1	96.26	-129.7	-887.4	90.0	60.1	29.87	3.012			
7,300.0	6,726.4	6,724.0	6,722.6	21.5	13.1	90.84	-129.7	-887.3	172.2	141.1	31.05	5.546			
7,400.0	6,725.7	6,723.1	6,721.7	21.9	13.1	90.11	-129.7	-887.3	266.9	234.9	31.98	8.346			
7,500.0	6,725.0	6,722.2	6,720.8	22.6	13.1	89.37	-129.7	-887.3	364.4	331.4	33.05	11.026			
7,600.0	6,724.3	6,721.4	6,719.9	23.6	13.1	88.64	-129.7	-887.3	463.0	428.8	34.24	13.521			
7,700.0	6,723.6	6,720.5	6,719.0	24.7	13.1	87.91	-129.7	-887.4	562.1	526.6	35.54	15.817			
7,800.0	6,722.9	6,719.6	6,718.1	25.9	13.1	87.17	-129.7	-887.4	661.4	624.5	36.91	17.921			
7,900.0	6,722.3	6,718.7	6,717.3	27.2	13.1	86.44	-129.7	-887.4	761.0	722.6	38.35	19.843			
8,000.0	6,721.6	6,717.8	6,716.4	28.6	13.1	85.71	-129.7	-887.5	860.6	820.8	39.84	21.600			
8,100.0	6,720.9	6,717.0	6,715.5	30.1	13.1	84.99	-129.7	-887.5	960.3	918.9	41.38	23.207			

<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R64W - Ottenhoff 41-6B (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft	
Survey Program: 488-NS-GYRO-MS													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	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	400.8	0.23	1,744.980		
200.0	200.0	188.7	188.7	0.3	0.3	97.21	-50.3	397.7	400.9	400.3	0.59	682.016		
300.0	300.0	289.1	289.1	0.6	0.4	97.23	-50.4	397.5	400.6	399.7	0.95	423.631		
400.0	400.0	389.5	389.5	0.8	0.5	97.26	-50.6	397.1	400.3	399.0	1.30	307.067		
500.0	500.0	489.8	489.8	1.0	0.7	97.29	-50.7	396.7	399.9	398.2	1.66	240.590		
600.0	600.0	588.5	588.5	1.2	0.8	97.26	-50.5	396.4	399.6	397.6	2.05	194.981		
633.6	633.6	621.6	621.6	1.3	0.9	97.22	-50.2	396.4	399.6	397.4	2.18	183.342 CC		
700.0	700.0	686.1	686.0	1.5	0.9	97.11	-49.5	396.7	399.7	397.3	2.41	165.826 ES		
800.0	800.0	782.2	782.2	1.7	1.1	96.91	-48.2	397.8	400.7	398.0	2.74	146.446		
900.0	900.0	880.3	880.2	1.9	1.2	96.64	-46.5	399.7	402.4	399.3	3.11	129.585		
1,000.0	1,000.0	979.0	978.9	2.1	1.4	96.22	-43.8	402.1	404.6	401.1	3.50	115.688		
1,100.0	1,100.0	1,078.5	1,078.3	2.4	1.6	153.91	-39.9	404.8	408.0	404.1	3.93	103.899		
1,200.0	1,199.9	1,179.7	1,179.3	2.6	1.8	153.38	-34.9	407.6	413.9	409.5	4.37	94.680		
1,300.0	1,299.7	1,281.1	1,280.5	2.8	2.1	152.95	-29.3	409.9	421.5	416.7	4.83	87.320		
1,400.0	1,399.3	1,374.8	1,374.0	3.0	2.3	152.56	-23.2	412.7	432.0	426.8	5.27	81.914		
1,500.0	1,498.6	1,468.3	1,467.1	3.3	2.5	152.16	-16.1	416.8	446.2	440.5	5.73	77.926		
1,600.0	1,597.5	1,571.6	1,570.0	3.6	2.8	151.79	-7.5	421.4	462.7	456.5	6.21	74.522		
1,700.0	1,696.1	1,677.9	1,675.7	3.9	3.1	151.47	2.4	424.9	480.4	473.7	6.71	71.600		
1,800.0	1,794.2	1,792.9	1,790.0	4.2	3.4	151.01	16.0	425.8	497.6	490.4	7.24	68.698		
1,900.0	1,891.7	1,905.4	1,901.1	4.6	3.7	150.31	33.2	423.4	514.1	506.3	7.78	66.039		
2,000.0	1,988.9	2,024.6	2,018.5	5.0	4.0	149.75	52.4	417.2	528.6	520.3	8.38	63.082		
2,100.0	2,086.2	2,144.1	2,135.4	5.4	4.3	148.93	74.4	406.1	539.0	530.0	8.99	59.936		
2,200.0	2,183.4	2,247.3	2,236.3	5.8	4.6	148.32	92.8	394.4	547.5	537.9	9.57	57.189		
2,300.0	2,280.6	2,351.1	2,337.6	6.3	4.9	147.71	111.4	381.9	555.4	545.2	10.17	54.620		
2,400.0	2,377.9	2,459.9	2,444.0	6.7	5.1	147.24	129.6	367.6	562.2	551.4	10.78	52.156		
2,500.0	2,475.1	2,577.1	2,558.3	7.2	5.5	146.86	147.8	349.5	566.7	555.3	11.41	49.654		
2,600.0	2,572.3	2,699.2	2,676.8	7.7	5.8	146.55	165.9	326.3	567.6	555.5	12.06	47.074		
2,700.0	2,669.6	2,808.3	2,782.0	8.1	6.1	146.25	182.2	302.2	565.3	552.6	12.67	44.600		
2,800.0	2,766.8	2,900.9	2,871.5	8.6	6.3	146.10	194.9	282.2	563.6	550.3	13.25	42.536		
2,900.0	2,864.0	3,008.0	2,975.1	9.1	6.6	146.03	208.6	258.6	561.4	547.5	13.86	40.507		
3,000.0	2,961.3	3,104.7	3,068.4	9.6	6.9	145.95	221.2	237.0	558.9	544.4	14.45	38.677		
3,100.0	3,058.5	3,193.6	3,154.7	10.0	7.1	145.92	232.4	218.4	557.7	542.7	15.02	37.127		
3,102.1	3,060.5	3,195.4	3,156.4	10.0	7.1	145.92	232.6	218.0	557.7	542.7	15.03	37.098		
3,200.0	3,155.7	3,279.1	3,238.0	10.5	7.4	145.98	242.3	202.4	559.0	543.4	15.58	35.870		
3,300.0	3,253.0	3,364.8	3,322.2	11.0	7.6	146.19	251.0	188.8	562.8	546.7	16.13	34.885		
3,400.0	3,350.2	3,457.9	3,414.0	11.5	7.8	146.53	259.3	175.7	568.7	552.0	16.69	34.069		
3,500.0	3,447.4	3,574.3	3,528.4	12.0	8.2	146.74	271.8	158.2	573.6	556.2	17.33	33.098		
3,600.0	3,544.7	3,688.6	3,640.0	12.5	8.5	146.74	285.9	137.9	575.6	557.6	17.98	32.010		
3,700.0	3,641.9	3,802.9	3,751.0	13.0	8.9	146.67	300.7	114.8	575.4	556.7	18.65	30.855		
3,800.0	3,739.1	3,912.0	3,855.9	13.5	9.2	146.27	317.9	90.5	572.9	553.5	19.34	29.623		
3,900.0	3,836.4	4,006.0	3,946.2	14.0	9.5	145.85	333.5	69.3	570.2	550.2	20.00	28.509		
4,000.0	3,933.6	4,098.6	4,035.5	14.5	9.8	145.53	348.0	49.5	568.7	548.1	20.65	27.542		
4,100.0	4,030.8	4,196.6	4,130.2	14.9	10.1	145.25	362.7	29.4	568.2	546.9	21.31	26.658		
4,171.0	4,099.9	4,265.2	4,196.7	15.3	10.3	145.14	372.2	15.6	568.0	546.3	21.77	26.091		
4,200.0	4,128.1	4,293.2	4,224.0	15.4	10.4	145.14	375.7	10.1	568.1	546.1	21.95	25.876		
4,300.0	4,225.3	4,391.0	4,319.2	15.9	10.7	145.19	387.3	-8.8	568.6	546.0	22.57	25.187		
4,400.0	4,322.5	4,486.4	4,412.2	16.4	11.0	145.14	399.5	-26.7	569.7	546.5	23.21	24.550		
4,500.0	4,419.8	4,585.2	4,508.3	16.9	11.3	145.05	412.7	-45.0	571.1	547.3	23.86	23.941		
4,600.0	4,517.0	4,676.9	4,597.8	17.4	11.6	145.04	424.2	-61.1	573.5	549.0	24.47	23.434		
4,700.0	4,614.3	4,784.6	4,703.0	17.9	11.9	145.02	437.8	-80.2	575.6	550.5	25.14	22.897		

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells Sec.29-T5N-R64W - Ottenhoff 41-6B (Exist) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft
Survey Program:		488-NS-GYRO-MS											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
4,800.0	4,711.5	4,879.1	4,795.2	18.4	12.2	144.97	450.1	-96.9	577.9	552.1	25.78	22.421			
4,900.0	4,808.7	4,983.2	4,896.8	18.9	12.5	144.92	463.5	-115.1	580.3	553.9	26.44	21.949			
5,000.0	4,906.0	5,089.6	5,000.4	19.4	12.9	144.82	477.7	-135.0	581.5	554.4	27.12	21.442			
5,100.0	5,003.2	5,186.1	5,094.2	19.9	13.2	144.77	490.2	-153.4	582.4	554.6	27.76	20.977			
5,200.0	5,100.4	5,278.3	5,184.3	20.4	13.5	144.85	500.9	-169.7	584.5	556.2	28.37	20.604			
5,300.0	5,197.8	5,371.1	5,275.5	20.9	13.7	145.06	510.0	-185.0	587.2	558.2	28.95	20.284			
5,400.0	5,296.0	5,465.2	5,368.1	21.2	14.0	145.25	517.9	-199.2	588.4	559.0	29.46	19.973			
5,500.0	5,394.7	5,563.2	5,464.7	21.5	14.3	145.23	526.1	-213.5	587.3	557.3	29.97	19.594			
5,600.0	5,493.9	5,655.6	5,555.8	21.7	14.6	145.00	533.9	-226.5	583.9	553.4	30.46	19.168			
5,700.0	5,593.5	5,741.9	5,641.3	22.0	14.8	144.70	540.3	-236.8	579.7	548.8	30.90	18.762			
5,800.0	5,693.3	5,830.2	5,729.0	22.1	15.0	144.36	545.4	-245.3	574.9	543.6	31.30	18.368			
5,900.0	5,793.3	5,919.6	5,818.1	22.2	15.3	143.95	549.4	-252.2	569.1	537.5	31.67	17.974			
6,000.0	5,893.3	6,010.9	5,909.1	22.4	15.5	85.37	552.4	-257.6	563.5	531.4	32.09	17.560			
6,100.0	5,993.3	6,105.6	6,003.8	22.5	15.7	-95.02	554.5	-262.0	559.1	526.5	32.54	17.182			
6,200.0	6,092.7	6,198.5	6,096.5	22.5	15.9	-96.32	555.3	-265.3	556.7	523.7	33.02	16.859			
6,230.2	6,122.3	6,226.2	6,124.3	22.5	16.0	-96.89	555.4	-266.1	556.5	523.4	33.15	16.786			
6,300.0	6,189.8	6,290.2	6,188.2	22.5	16.1	-98.47	555.2	-267.4	557.4	524.0	33.45	16.663			
6,400.0	6,283.1	6,379.6	6,277.6	22.4	16.2	-101.25	554.1	-268.6	562.4	528.7	33.76	16.661 SF			
6,500.0	6,370.9	6,464.4	6,362.4	22.2	16.2	-104.30	552.3	-268.9	573.5	539.7	33.81	16.963			
6,600.0	6,451.7	6,543.2	6,441.2	22.0	16.2	-107.19	550.3	-268.5	592.5	558.9	33.57	17.649			
6,700.0	6,524.1	6,616.6	6,514.5	21.8	16.2	-109.61	548.0	-267.7	621.1	588.0	33.09	18.771			
6,800.0	6,586.9	6,681.8	6,579.7	21.6	16.2	-111.09	545.8	-266.8	660.1	627.6	32.49	20.318			
6,900.0	6,639.1	6,736.9	6,634.7	21.4	16.2	-111.16	543.7	-265.9	709.9	677.9	32.02	22.170			
7,000.0	6,679.6	6,780.7	6,678.5	21.3	16.2	-109.40	541.9	-265.0	769.9	738.0	31.93	24.112			
7,100.0	6,707.9	6,813.1	6,710.8	21.2	16.2	-105.42	540.4	-264.3	838.8	806.5	32.32	25.950			
7,200.0	6,723.5	6,833.1	6,730.9	21.2	16.2	-98.74	539.5	-263.8	914.9	881.9	32.97	27.745			
7,300.0	6,726.4	6,840.8	6,738.6	21.5	16.2	-91.89	539.2	-263.6	996.0	962.6	33.44	29.783			

<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<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	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)			
12,600.0	6,689.4	6,714.1	6,713.0	111.2	13.8	-87.18	-6,517.6	-637.7	947.7	823.6	124.11	7.636		
12,700.0	6,688.7	6,714.5	6,713.4	113.1	13.8	-87.28	-6,517.6	-637.7	849.7	723.7	126.02	6.743		
12,800.0	6,688.0	6,714.8	6,713.7	114.9	13.8	-87.38	-6,517.6	-637.7	752.3	624.4	127.93	5.881		
12,900.0	6,687.3	6,715.1	6,714.0	116.8	13.8	-87.49	-6,517.6	-637.7	655.7	525.9	129.84	5.050		
13,000.0	6,686.6	6,715.4	6,714.3	118.7	13.8	-87.59	-6,517.6	-637.7	560.3	428.5	131.76	4.252		
13,100.0	6,685.9	6,715.8	6,714.7	120.6	13.8	-87.70	-6,517.6	-637.7	466.8	333.1	133.67	3.492		
13,200.0	6,685.3	6,716.1	6,715.0	122.5	13.8	-87.80	-6,517.6	-637.7	376.6	241.0	135.59	2.777		
13,300.0	6,684.6	6,716.4	6,715.4	124.4	13.8	-87.91	-6,517.6	-637.6	292.9	155.4	137.50	2.130		
13,400.0	6,683.9	6,716.8	6,715.7	126.3	13.8	-88.02	-6,517.6	-637.6	223.0	83.6	139.42	1.599		
13,500.0	6,683.2	6,717.1	6,716.1	128.2	13.8	-88.14	-6,517.6	-637.6	183.5	42.2	141.33	1.299	Level 3	
13,530.2	6,682.9	6,717.3	6,716.2	128.8	13.8	-88.17	-6,517.6	-637.6	181.0	39.1	141.91	1.276	Level 3, CC, ES, SF	
13,600.0	6,682.5	6,717.5	6,716.4	130.1	13.8	-88.25	-6,517.6	-637.6	194.0	50.8	143.25	1.354	Level 3	
13,700.0	6,681.8	6,717.9	6,716.8	132.0	13.8	-88.36	-6,517.6	-637.6	248.2	103.0	145.17	1.710		
13,800.0	6,681.1	6,718.2	6,717.1	133.9	13.8	-88.48	-6,517.6	-637.6	324.9	177.8	147.09	2.209		
13,900.0	6,680.4	6,718.6	6,717.5	135.8	13.8	-88.60	-6,517.6	-637.6	411.7	262.7	149.00	2.763		
14,000.0	6,679.7	6,719.0	6,717.9	137.7	13.8	-88.72	-6,517.6	-637.6	503.4	352.5	150.92	3.336		
14,100.0	6,679.0	6,719.4	6,718.3	139.6	13.8	-88.84	-6,517.6	-637.6	597.8	445.0	152.84	3.912		
14,200.0	6,678.3	6,719.8	6,718.7	141.5	13.8	-88.97	-6,517.6	-637.5	693.8	539.0	154.76	4.483		
14,300.0	6,677.6	6,720.2	6,719.1	143.4	13.8	-89.09	-6,517.6	-637.5	790.8	634.1	156.67	5.047		
14,381.8	6,677.0	6,720.5	6,719.4	144.9	13.8	-89.20	-6,517.6	-637.5	870.6	712.4	158.24	5.502		



<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #1 (3-14-16)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	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	-89.08	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	0.22	200.842			
200.0	200.0	200.0	200.0	0.3	0.3	-89.08	0.7	-45.1	45.1	44.5	0.67	66.947	CC, ES		
300.0	300.0	298.9	298.9	0.6	0.6	-88.59	1.1	-46.3	46.4	45.3	1.11	41.592			
400.0	400.0	397.6	397.5	0.8	0.8	-87.27	2.4	-50.0	50.1	48.5	1.56	32.103			
500.0	500.0	496.1	495.8	1.0	1.0	-85.46	4.5	-56.0	56.3	54.3	2.02	27.931			
600.0	600.0	594.2	593.5	1.2	1.3	-83.51	7.3	-64.4	65.1	62.6	2.49	26.188			
700.0	700.0	691.7	690.4	1.5	1.5	-81.67	11.0	-75.0	76.4	73.5	2.97	25.717			
800.0	800.0	788.6	786.3	1.7	1.8	-80.05	15.4	-87.9	90.3	86.9	3.48	25.958			
900.0	900.0	884.8	881.1	1.9	2.2	-78.69	20.6	-103.0	106.8	102.7	4.01	26.607			
1,000.0	1,000.0	980.1	974.7	2.1	2.6	-77.56	26.5	-120.2	125.7	121.1	4.57	27.490			
1,100.0	1,100.0	1,074.7	1,067.0	2.4	3.0	-18.48	33.1	-139.4	145.8	141.1	4.76	30.630			
1,200.0	1,199.9	1,168.8	1,158.4	2.6	3.4	-18.01	40.4	-160.7	166.0	160.8	5.22	31.796			
1,300.0	1,299.7	1,262.4	1,248.8	2.8	3.9	-17.80	48.4	-184.0	186.1	180.4	5.69	32.715			
1,400.0	1,399.3	1,355.6	1,338.1	3.0	4.4	-17.77	57.1	-209.2	206.2	200.0	6.16	33.444			
1,500.0	1,498.6	1,448.4	1,426.3	3.3	5.0	-17.87	66.4	-236.4	226.2	219.5	6.65	33.995			
1,600.0	1,597.5	1,542.2	1,514.8	3.6	5.6	-18.08	76.5	-265.8	246.0	238.9	7.16	34.370			
1,700.0	1,696.1	1,640.5	1,607.3	3.9	6.3	-18.43	87.3	-297.2	264.1	256.4	7.68	34.375			
1,800.0	1,794.2	1,739.2	1,700.2	4.2	7.0	-18.91	98.2	-328.8	279.7	271.5	8.22	34.019			
1,900.0	1,891.7	1,838.3	1,793.4	4.6	7.7	-19.51	109.0	-360.5	293.0	284.2	8.78	33.362			
2,000.0	1,988.9	1,937.5	1,886.8	5.0	8.4	-20.20	119.9	-392.2	305.0	295.6	9.37	32.544			
2,100.0	2,086.2	2,036.7	1,980.2	5.4	9.1	-20.85	130.8	-423.9	317.1	307.1	9.98	31.784			
2,200.0	2,183.4	2,135.9	2,073.5	5.8	9.8	-21.44	141.7	-455.7	329.2	318.6	10.59	31.077			
2,300.0	2,280.6	2,235.1	2,166.9	6.3	10.5	-22.00	152.6	-487.4	341.3	330.1	11.22	30.419			
2,400.0	2,377.9	2,334.3	2,260.3	6.7	11.2	-22.51	163.5	-519.1	353.5	341.6	11.86	29.808			
2,500.0	2,475.1	2,433.6	2,353.6	7.2	11.9	-22.99	174.4	-550.8	365.7	353.2	12.51	29.240			
2,600.0	2,572.3	2,532.8	2,447.0	7.7	12.6	-23.44	185.3	-582.6	377.9	364.8	13.16	28.710			
2,700.0	2,669.6	2,632.0	2,540.4	8.1	13.3	-23.86	196.2	-614.3	390.2	376.3	13.83	28.216			
2,800.0	2,766.8	2,731.2	2,633.7	8.6	14.0	-24.26	207.1	-646.0	402.4	387.9	14.50	27.756			
2,900.0	2,864.0	2,830.4	2,727.1	9.1	14.7	-24.63	218.0	-677.7	414.7	399.5	15.18	27.325			
3,000.0	2,961.3	2,929.6	2,820.5	9.6	15.4	-24.98	228.9	-709.5	427.0	411.2	15.86	26.922			
3,100.0	3,058.5	3,028.8	2,913.8	10.0	16.1	-25.32	239.8	-741.2	439.3	422.8	16.55	26.544			
3,200.0	3,155.7	3,128.0	3,007.2	10.5	16.9	-25.63	250.7	-772.9	451.7	434.4	17.25	26.190			
3,300.0	3,253.0	3,227.2	3,100.6	11.0	17.6	-25.93	261.6	-804.6	464.0	446.1	17.94	25.857			
3,400.0	3,350.2	3,326.4	3,193.9	11.5	18.3	-26.21	272.5	-836.4	476.3	457.7	18.65	25.544			
3,500.0	3,447.4	3,425.6	3,287.3	12.0	19.0	-26.47	283.4	-868.1	488.7	469.4	19.36	25.248			
3,600.0	3,544.7	3,524.8	3,380.6	12.5	19.7	-26.73	294.3	-899.8	501.1	481.0	20.07	24.970			
3,700.0	3,641.9	3,624.1	3,474.0	13.0	20.4	-26.97	305.2	-931.5	513.5	492.7	20.78	24.707			
3,800.0	3,739.1	3,723.3	3,567.4	13.5	21.1	-27.20	316.1	-963.3	525.9	504.4	21.50	24.458			
3,900.0	3,836.4	3,822.5	3,660.7	14.0	21.8	-27.42	327.0	-995.0	538.3	516.0	22.22	24.222			
4,000.0	3,933.6	3,921.7	3,754.1	14.5	22.6	-27.63	337.9	-1,026.7	550.7	527.7	22.95	23.999			
4,100.0	4,030.8	4,020.9	3,847.5	14.9	23.3	-27.83	348.8	-1,058.4	563.1	539.4	23.67	23.787			
4,200.0	4,128.1	4,120.1	3,940.8	15.4	24.0	-28.02	359.7	-1,090.2	575.5	551.1	24.40	23.585			
4,300.0	4,225.3	4,219.3	4,034.2	15.9	24.7	-28.21	370.6	-1,121.9	587.9	562.8	25.13	23.393			
4,400.0	4,322.5	4,318.5	4,127.6	16.4	25.4	-28.38	381.5	-1,153.6	600.3	574.5	25.86	23.211			
4,500.0	4,419.8	4,417.7	4,220.9	16.9	26.1	-28.55	392.3	-1,185.3	612.8	586.2	26.60	23.037			
4,600.0	4,517.0	4,516.9	4,314.3	17.4	26.8	-28.71	403.2	-1,217.1	625.2	597.9	27.34	22.871			
4,700.0	4,614.3	4,616.1	4,407.7	17.9	27.6	-28.87	414.1	-1,248.8	637.7	609.6	28.08	22.712			
4,800.0	4,711.5	4,715.3	4,501.0	18.4	28.3	-29.02	425.0	-1,280.5	650.1	621.3	28.82	22.560			
4,900.0	4,808.7	4,814.5	4,594.4	18.9	29.0	-29.17	435.9	-1,312.2	662.6	633.0	29.56	22.415			
5,000.0	4,906.0	4,913.8	4,687.8	19.4	29.7	-29.30	446.8	-1,344.0	675.0	644.7	30.30	22.276			

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ 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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #1 (3-14-16)											Offset Site Error:		0.0 ft			
Survey Program: 0-MWD															Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance											
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)							
5,100.0	5,003.2	5,028.7	4,796.2	19.9	30.4	-29.48	459.2	-1,380.0	686.9	655.8	31.09	22.093						
5,200.0	5,100.4	5,158.1	4,919.9	20.4	31.1	-29.79	471.6	-1,416.0	694.9	663.0	31.92	21.771						
5,300.0	5,197.8	5,288.1	5,045.7	20.9	31.6	-30.23	482.1	-1,446.8	699.4	666.7	32.71	21.383						
5,400.0	5,296.0	5,418.3	5,173.1	21.2	32.1	-30.64	490.9	-1,472.1	702.5	669.1	33.37	21.051						
5,500.0	5,394.7	5,548.7	5,301.7	21.5	32.5	-30.99	497.7	-1,492.1	704.2	670.3	33.94	20.751						
5,600.0	5,493.9	5,679.0	5,431.2	21.7	32.8	-31.29	502.6	-1,506.4	704.6	670.2	34.41	20.477						
5,700.0	5,593.5	5,809.4	5,561.2	22.0	33.0	-31.53	505.6	-1,515.2	703.7	668.9	34.79	20.229						
5,800.0	5,693.3	5,939.5	5,691.3	22.1	33.1	-31.73	506.7	-1,518.4	701.5	666.4	35.07	20.003						
5,900.0	5,793.3	6,041.5	5,793.3	22.2	33.2	-31.80	506.7	-1,518.4	699.8	664.6	35.22	19.868						
5,941.2	5,834.5	6,082.7	5,834.5	22.3	33.2	-31.80	506.7	-1,518.4	699.8	664.4	35.34	19.802						
6,000.0	5,893.3	6,141.5	5,893.3	22.4	33.3	-90.10	505.8	-1,518.4	699.8	664.3	35.52	19.704						
6,100.0	5,993.3	6,240.1	5,991.1	22.5	33.3	89.02	494.4	-1,518.4	699.9	663.9	36.03	19.425						
6,200.0	6,092.7	6,336.7	6,084.9	22.5	33.3	87.90	471.2	-1,518.4	700.3	663.8	36.45	19.213						
6,300.0	6,189.8	6,431.8	6,173.5	22.5	33.2	86.83	437.0	-1,518.4	700.9	664.3	36.65	19.124						
6,400.0	6,283.1	6,525.5	6,256.0	22.4	33.1	85.82	392.8	-1,518.4	701.7	665.1	36.64	19.149						
6,500.0	6,370.9	6,617.9	6,331.5	22.2	33.0	84.89	339.6	-1,518.4	702.6	666.2	36.47	19.269						
6,600.0	6,451.7	6,709.2	6,399.3	22.0	32.8	84.04	278.5	-1,518.4	703.7	667.5	36.17	19.453						
6,700.0	6,524.1	6,800.0	6,459.0	21.8	32.7	83.28	210.1	-1,518.4	704.7	668.8	35.85	19.659						
6,800.0	6,586.9	6,889.0	6,509.2	21.6	32.6	82.63	136.7	-1,518.4	705.7	670.1	35.59	19.825						
6,900.0	6,639.1	6,977.8	6,550.5	21.4	32.5	82.10	58.1	-1,518.4	706.5	671.0	35.53	19.886						
7,000.0	6,679.6	7,066.2	6,582.2	21.3	32.4	81.69	-24.3	-1,518.4	707.2	671.5	35.75	19.781						
7,100.0	6,707.9	7,154.1	6,604.1	21.2	32.3	81.41	-109.4	-1,518.4	707.8	671.4	36.35	19.471						
7,200.0	6,723.5	7,241.8	6,616.1	21.2	32.3	81.25	-196.3	-1,518.4	708.0	670.7	37.36	18.951						
7,300.0	6,726.4	7,334.1	6,618.9	21.5	32.4	81.26	-288.5	-1,518.4	708.0	669.3	38.78	18.256						
7,400.0	6,725.7	7,434.1	6,619.7	21.9	32.6	81.38	-388.4	-1,518.4	707.8	667.3	40.50	17.475						
7,500.0	6,725.0	7,534.1	6,620.5	22.6	32.8	81.50	-488.4	-1,518.4	707.6	665.1	42.49	16.651						
7,600.0	6,724.3	7,634.0	6,621.3	23.6	33.2	81.63	-588.4	-1,518.4	707.4	662.6	44.72	15.817						
7,700.0	6,723.6	7,734.0	6,622.1	24.7	33.7	81.75	-688.4	-1,518.4	707.1	660.0	47.15	14.998						
7,800.0	6,722.9	7,834.0	6,623.0	25.9	34.3	81.87	-788.4	-1,518.4	706.9	657.2	49.75	14.210						
7,900.0	6,722.3	7,934.0	6,623.8	27.2	35.0	81.99	-888.4	-1,518.4	706.7	654.2	52.50	13.462						
8,000.0	6,721.6	8,034.0	6,624.6	28.6	35.9	82.11	-988.3	-1,518.4	706.5	651.1	55.37	12.760						
8,100.0	6,720.9	8,134.0	6,625.4	30.1	36.8	82.24	-1,088.3	-1,518.4	706.3	647.9	58.35	12.104						
8,200.0	6,720.2	8,234.0	6,626.2	31.6	37.9	82.36	-1,188.3	-1,518.4	706.1	644.7	61.43	11.495						
8,300.0	6,719.5	8,334.0	6,627.1	33.1	39.0	82.48	-1,288.3	-1,518.4	705.9	641.3	64.58	10.931						
8,400.0	6,718.8	8,434.0	6,627.9	34.7	40.3	82.60	-1,388.3	-1,518.4	705.7	637.9	67.80	10.409						
8,500.0	6,718.1	8,533.9	6,628.7	36.3	41.6	82.72	-1,488.3	-1,518.4	705.5	634.4	71.08	9.925						
8,600.0	6,717.4	8,633.9	6,629.5	38.0	43.0	82.85	-1,588.3	-1,518.4	705.3	630.9	74.41	9.478						
8,700.0	6,716.7	8,733.9	6,630.3	39.7	44.4	82.97	-1,688.2	-1,518.4	705.1	627.3	77.79	9.064						
8,800.0	6,716.0	8,833.9	6,631.2	41.4	45.9	83.09	-1,788.2	-1,518.4	704.9	623.7	81.21	8.681						
8,900.0	6,715.3	8,933.9	6,632.0	43.1	47.4	83.21	-1,888.2	-1,518.4	704.8	620.1	84.66	8.324						
9,000.0	6,714.6	9,033.9	6,632.8	44.8	48.9	83.34	-1,988.2	-1,518.4	704.6	616.4	88.15	7.993						
9,100.0	6,713.9	9,133.9	6,633.6	46.5	50.5	83.46	-2,088.2	-1,518.4	704.4	612.7	91.66	7.685						
9,200.0	6,713.2	9,233.9	6,634.4	48.3	52.1	83.58	-2,188.2	-1,518.4	704.2	609.0	95.19	7.398						
9,300.0	6,712.5	9,333.8	6,635.3	50.1	53.7	83.70	-2,288.2	-1,518.4	704.1	605.3	98.75	7.130						
9,400.0	6,711.8	9,433.8	6,636.1	51.8	55.4	83.83	-2,388.1	-1,518.4	703.9	601.6	102.33	6.879						
9,500.0	6,711.1	9,533.8	6,636.9	53.6	57.1	83.95	-2,488.1	-1,518.4	703.7	597.8	105.93	6.643						
9,600.0	6,710.4	9,633.8	6,637.7	55.4	58.7	84.07	-2,588.1	-1,518.4	703.6	594.0	109.54	6.423						
9,700.0	6,709.7	9,733.8	6,638.5	57.2	60.4	84.20	-2,688.1	-1,518.4	703.4	590.3	113.17	6.216						
9,800.0	6,709.0	9,833.8	6,639.4	59.0	62.1	84.32	-2,788.1	-1,518.4	703.3	586.5	116.81	6.020						
9,900.0	6,708.3	9,933.8	6,640.2	60.8	63.9	84.44	-2,888.1	-1,518.4	703.1	582.7	120.47	5.837						

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-203 - Wellbore #1 - Plan #1 (3-14-16)											Offset Site Error:		0.0 ft
Survey Program:		0-MWD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
10,000.0	6,707.6	10,033.8	6,641.0	62.7	65.6	84.57	-2,988.1	-1,518.4	703.0	578.8	124.14	5.663			
10,100.0	6,706.9	10,133.8	6,641.8	64.5	67.4	84.69	-3,088.0	-1,518.4	702.8	575.0	127.81	5.499			
10,200.0	6,706.2	10,233.7	6,642.6	66.3	69.1	84.81	-3,188.0	-1,518.4	702.7	571.2	131.50	5.344			
10,300.0	6,705.5	10,333.7	6,643.5	68.2	70.9	84.94	-3,288.0	-1,518.4	702.6	567.4	135.19	5.197			
10,400.0	6,704.8	10,433.7	6,644.3	70.0	72.7	85.06	-3,388.0	-1,518.4	702.4	563.5	138.90	5.057			
10,500.0	6,704.1	10,533.7	6,645.1	71.8	74.4	85.18	-3,488.0	-1,518.4	702.3	559.7	142.61	4.925			
10,600.0	6,703.4	10,633.7	6,645.9	73.7	76.2	85.31	-3,588.0	-1,518.4	702.2	555.9	146.32	4.799			
10,700.0	6,702.7	10,733.7	6,646.8	75.5	78.0	85.43	-3,687.9	-1,518.4	702.1	552.0	150.05	4.679			
10,800.0	6,702.0	10,833.7	6,647.6	77.4	79.8	85.55	-3,787.9	-1,518.4	701.9	548.2	153.78	4.565			
10,900.0	6,701.3	10,933.7	6,648.4	79.3	81.6	85.68	-3,887.9	-1,518.4	701.8	544.3	157.51	4.456			
11,000.0	6,700.6	11,033.7	6,649.2	81.1	83.4	85.80	-3,987.9	-1,518.4	701.7	540.5	161.25	4.352			
11,100.0	6,699.9	11,133.6	6,650.0	83.0	85.2	85.92	-4,087.9	-1,518.4	701.6	536.6	165.00	4.252			
11,200.0	6,699.2	11,233.6	6,650.9	84.8	87.1	86.05	-4,187.9	-1,518.4	701.5	532.7	168.75	4.157			
11,300.0	6,698.5	11,333.6	6,651.7	86.7	88.9	86.17	-4,287.9	-1,518.4	701.4	528.9	172.50	4.066			
11,400.0	6,697.8	11,433.6	6,652.5	88.6	90.7	86.29	-4,387.8	-1,518.4	701.3	525.0	176.26	3.979			
11,500.0	6,697.1	11,533.6	6,653.3	90.5	92.6	86.42	-4,487.8	-1,518.4	701.2	521.2	180.02	3.895			
11,600.0	6,696.4	11,633.6	6,654.1	92.3	94.4	86.54	-4,587.8	-1,518.4	701.1	517.3	183.79	3.815			
11,700.0	6,695.7	11,733.6	6,655.0	94.2	96.2	86.67	-4,687.8	-1,518.4	701.0	513.5	187.56	3.738			
11,800.0	6,695.0	11,833.6	6,655.8	96.1	98.1	86.79	-4,787.8	-1,518.4	700.9	509.6	191.33	3.663			
11,900.0	6,694.3	11,933.5	6,656.6	98.0	99.9	86.91	-4,887.8	-1,518.4	700.8	505.7	195.10	3.592			
12,000.0	6,693.6	12,033.5	6,657.4	99.8	101.8	87.04	-4,987.8	-1,518.4	700.8	501.9	198.88	3.524			
12,100.0	6,692.9	12,133.5	6,658.2	101.7	103.6	87.16	-5,087.7	-1,518.4	700.7	498.0	202.66	3.457			
12,200.0	6,692.2	12,233.5	6,659.1	103.6	105.5	87.29	-5,187.7	-1,518.4	700.6	494.2	206.44	3.394			
12,300.0	6,691.5	12,333.5	6,659.9	105.5	107.3	87.41	-5,287.7	-1,518.4	700.5	490.3	210.22	3.332			
12,400.0	6,690.8	12,433.5	6,660.7	107.4	109.2	87.53	-5,387.7	-1,518.4	700.5	486.5	214.01	3.273			
12,500.0	6,690.1	12,533.5	6,661.5	109.3	111.0	87.66	-5,487.7	-1,518.4	700.4	482.6	217.79	3.216			
12,600.0	6,689.4	12,633.5	6,662.3	111.2	112.9	87.78	-5,587.7	-1,518.4	700.3	478.8	221.58	3.161			
12,700.0	6,688.7	12,733.5	6,663.2	113.1	114.8	87.91	-5,687.6	-1,518.4	700.3	474.9	225.37	3.107			
12,800.0	6,688.0	12,833.4	6,664.0	114.9	116.6	88.03	-5,787.6	-1,518.4	700.2	471.1	229.16	3.056			
12,900.0	6,687.3	12,933.4	6,664.8	116.8	118.5	88.15	-5,887.6	-1,518.4	700.2	467.2	232.95	3.006			
13,000.0	6,686.6	13,033.4	6,665.6	118.7	120.4	88.28	-5,987.6	-1,518.4	700.1	463.4	236.75	2.957			
13,100.0	6,685.9	13,133.4	6,666.4	120.6	122.2	88.40	-6,087.6	-1,518.4	700.1	459.6	240.54	2.911			
13,200.0	6,685.3	13,233.4	6,667.3	122.5	124.1	88.53	-6,187.6	-1,518.4	700.1	455.7	244.33	2.865			
13,300.0	6,684.6	13,333.4	6,668.1	124.4	126.0	88.65	-6,287.6	-1,518.4	700.0	451.9	248.13	2.821			
13,400.0	6,683.9	13,433.4	6,668.9	126.3	127.8	88.78	-6,387.5	-1,518.4	700.0	448.1	251.93	2.779			
13,500.0	6,683.2	13,533.4	6,669.7	128.2	129.7	88.90	-6,487.5	-1,518.4	700.0	444.2	255.72	2.737			
13,600.0	6,682.5	13,633.4	6,670.5	130.1	131.6	89.02	-6,587.5	-1,518.4	699.9	440.4	259.52	2.697			
13,700.0	6,681.8	13,733.3	6,671.4	132.0	133.5	89.15	-6,687.5	-1,518.4	699.9	436.6	263.32	2.658			
13,800.0	6,681.1	13,833.3	6,672.2	133.9	135.3	89.27	-6,787.5	-1,518.4	699.9	432.8	267.11	2.620			
13,900.0	6,680.4	13,933.3	6,673.0	135.8	137.2	89.40	-6,887.5	-1,518.4	699.9	429.0	270.91	2.583			
14,000.0	6,679.7	14,033.3	6,673.8	137.7	139.1	89.52	-6,987.5	-1,518.4	699.9	425.1	274.71	2.548			
14,100.0	6,679.0	14,133.3	6,674.6	139.6	141.0	89.65	-7,087.4	-1,518.4	699.8	421.3	278.51	2.513			
14,200.0	6,678.3	14,233.3	6,675.5	141.5	142.9	89.77	-7,187.4	-1,518.4	699.8	417.5	282.30	2.479			
14,300.0	6,677.6	14,333.3	6,676.3	143.4	144.8	89.89	-7,287.4	-1,518.4	699.8	413.7	286.10	2.446			
14,379.6	6,677.0	14,412.9	6,676.9	144.9	146.3	89.99	-7,367.0	-1,518.4	699.8	410.7	289.12	2.421			
14,381.8	6,677.0	14,415.1	6,676.9	144.9	146.3	90.00	-7,369.2	-1,518.4	699.8	410.6	289.21	2.420 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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-323 - Wellbore #1 - Plan #1 (3-14-16)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	-88.63	0.4	-15.0	15.0	15.0	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-88.63	0.4	-15.0	15.0	14.8	0.23	66.295		
200.0	200.0	201.0	201.0	0.3	0.3	-88.63	0.4	-15.0	15.0	14.4	0.68	22.245		
300.0	300.0	301.0	301.0	0.6	0.6	-88.63	0.4	-15.0	15.0	13.9	1.13	13.365		
400.0	400.0	401.0	401.0	0.8	0.8	-88.63	0.4	-15.0	15.0	13.5	1.58	9.552		
500.0	500.0	501.0	501.0	1.0	1.0	-88.63	0.4	-15.0	15.0	13.0	2.03	7.432		
600.0	600.0	601.0	601.0	1.2	1.2	-88.63	0.4	-15.0	15.0	12.6	2.47	6.082		
700.0	700.0	701.0	701.0	1.5	1.5	-88.63	0.4	-15.0	15.0	12.1	2.92	5.147		
766.3	766.3	767.3	767.3	1.6	1.6	-88.63	0.4	-15.0	15.0	11.8	3.22	4.670 CC		
800.0	800.0	801.0	801.0	1.7	1.7	-88.63	0.4	-15.0	15.0	11.7	3.37	4.461		
900.0	900.0	900.6	900.6	1.9	1.9	-86.71	0.9	-16.2	16.3	12.5	3.82	4.265		
1,000.0	1,000.0	1,000.0	999.9	2.1	2.1	-82.45	2.6	-19.8	20.0	15.7	4.25	4.694		
1,100.0	1,100.0	1,099.4	1,099.1	2.4	2.3	-20.80	5.4	-25.6	25.0	20.4	4.68	5.346		
1,200.0	1,199.9	1,198.6	1,197.8	2.6	2.6	-19.06	9.3	-33.8	30.2	25.1	5.11	5.912		
1,300.0	1,299.7	1,297.6	1,296.2	2.8	2.8	-18.27	14.3	-44.2	35.5	29.9	5.54	6.398		
1,400.0	1,399.3	1,396.5	1,394.1	3.0	3.1	-18.06	20.4	-57.0	40.8	34.8	5.98	6.816		
1,500.0	1,498.6	1,495.2	1,491.4	3.3	3.4	-18.24	27.6	-72.0	46.1	39.7	6.42	7.177		
1,600.0	1,597.5	1,593.9	1,588.2	3.6	3.8	-18.68	35.9	-89.2	51.5	44.6	6.88	7.488		
1,700.0	1,696.1	1,692.4	1,684.3	3.9	4.1	-19.30	45.2	-108.6	56.9	49.6	7.34	7.752		
1,800.0	1,794.2	1,790.7	1,779.6	4.2	4.6	-20.06	55.5	-130.3	62.4	54.6	7.83	7.973		
1,900.0	1,891.7	1,889.7	1,875.0	4.6	5.0	-20.98	66.9	-154.1	67.7	59.3	8.33	8.124		
2,000.0	1,988.9	1,989.6	1,971.2	5.0	5.5	-22.10	78.6	-178.4	72.1	63.3	8.89	8.117		
2,100.0	2,086.2	2,089.5	2,067.4	5.4	6.0	-23.09	90.3	-202.8	76.6	67.2	9.47	8.096		
2,200.0	2,183.4	2,189.3	2,163.5	5.8	6.6	-23.97	101.9	-227.1	81.1	71.1	10.06	8.065		
2,300.0	2,280.6	2,289.2	2,259.7	6.3	7.1	-24.76	113.6	-251.5	85.7	75.0	10.67	8.027		
2,400.0	2,377.9	2,389.1	2,355.9	6.7	7.6	-25.47	125.3	-275.8	90.2	78.9	11.30	7.985		
2,500.0	2,475.1	2,489.0	2,452.0	7.2	8.2	-26.11	136.9	-300.2	94.8	82.8	11.94	7.939		
2,600.0	2,572.3	2,588.9	2,548.2	7.7	8.7	-26.69	148.6	-324.6	99.3	86.7	12.59	7.892		
2,700.0	2,669.6	2,688.8	2,644.4	8.1	9.3	-27.22	160.3	-348.9	103.9	90.7	13.25	7.844		
2,800.0	2,766.8	2,788.7	2,740.6	8.6	9.8	-27.70	171.9	-373.3	108.5	94.6	13.92	7.796		
2,900.0	2,864.0	2,888.6	2,836.7	9.1	10.4	-28.15	183.6	-397.6	113.1	98.5	14.59	7.749		
3,000.0	2,961.3	2,988.5	2,932.9	9.6	10.9	-28.56	195.3	-422.0	117.7	102.4	15.28	7.703		
3,100.0	3,058.5	3,088.4	3,029.1	10.0	11.5	-28.94	206.9	-446.4	122.3	106.3	15.97	7.658		
3,200.0	3,155.7	3,188.3	3,125.2	10.5	12.1	-29.29	218.6	-470.7	126.9	110.2	16.66	7.614		
3,300.0	3,253.0	3,288.1	3,221.4	11.0	12.6	-29.62	230.3	-495.1	131.5	114.1	17.36	7.572		
3,400.0	3,350.2	3,388.0	3,317.6	11.5	13.2	-29.92	241.9	-519.4	136.1	118.0	18.07	7.532		
3,500.0	3,447.4	3,487.9	3,413.7	12.0	13.8	-30.21	253.6	-543.8	140.7	121.9	18.78	7.492		
3,600.0	3,544.7	3,587.8	3,509.9	12.5	14.3	-30.48	265.3	-568.2	145.3	125.8	19.50	7.455		
3,700.0	3,641.9	3,687.7	3,606.1	13.0	14.9	-30.73	276.9	-592.5	150.0	129.8	20.21	7.419		
3,800.0	3,739.1	3,787.6	3,702.3	13.5	15.5	-30.96	288.6	-616.9	154.6	133.7	20.94	7.384		
3,900.0	3,836.4	3,887.5	3,798.4	14.0	16.0	-31.19	300.3	-641.2	159.2	137.6	21.66	7.351		
4,000.0	3,933.6	3,987.4	3,894.6	14.5	16.6	-31.40	311.9	-665.6	163.9	141.5	22.39	7.320		
4,100.0	4,030.8	4,087.3	3,990.8	14.9	17.2	-31.59	323.6	-689.9	168.5	145.4	23.12	7.289		
4,200.0	4,128.1	4,187.2	4,086.9	15.4	17.7	-31.78	335.3	-714.3	173.1	149.3	23.85	7.260		
4,300.0	4,225.3	4,287.1	4,183.1	15.9	18.3	-31.96	347.0	-738.7	177.8	153.2	24.58	7.232		
4,400.0	4,322.5	4,386.9	4,279.3	16.4	18.9	-32.13	358.6	-763.0	182.4	157.1	25.32	7.205		
4,500.0	4,419.8	4,486.8	4,375.5	16.9	19.4	-32.29	370.3	-787.4	187.0	161.0	26.05	7.179		
4,600.0	4,517.0	4,586.7	4,471.6	17.4	20.0	-32.44	382.0	-811.7	191.7	164.9	26.79	7.155		
4,700.0	4,614.3	4,686.6	4,567.8	17.9	20.6	-32.59	393.6	-836.1	196.3	168.8	27.53	7.131		
4,800.0	4,711.5	4,786.5	4,664.0	18.4	21.2	-32.73	405.3	-860.5	201.0	172.7	28.27	7.108		
4,900.0	4,808.7	4,886.4	4,760.1	18.9	21.7	-32.86	417.0	-884.8	205.6	176.6	29.02	7.086		

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-323 - Wellbore #1 - Plan #1 (3-14-16)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	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	4,906.0	4,986.3	4,856.3	19.4	22.3	-32.98	428.6	-909.2	210.3	180.5	29.76	7.065		
5,100.0	5,003.2	5,086.2	4,952.5	19.9	22.9	-33.11	440.3	-933.5	214.9	184.4	30.51	7.045		
5,200.0	5,100.4	5,186.1	5,048.6	20.4	23.4	-33.22	452.0	-957.9	219.6	188.3	31.25	7.025		
5,300.0	5,197.8	5,287.4	5,146.3	20.9	24.0	-33.27	463.8	-982.5	224.8	192.9	31.96	7.036		
5,400.0	5,296.0	5,394.9	5,250.4	21.2	24.5	-33.16	475.1	-1,006.3	230.6	198.1	32.49	7.097		
5,500.0	5,394.7	5,502.5	5,355.7	21.5	24.8	-33.00	484.8	-1,026.5	236.0	203.0	32.95	7.162		
5,600.0	5,493.9	5,610.4	5,462.0	21.7	25.2	-32.80	492.8	-1,043.2	240.9	207.6	33.31	7.231		
5,700.0	5,593.5	5,718.5	5,569.1	22.0	25.5	-32.55	499.1	-1,056.3	245.4	211.8	33.60	7.305		
5,800.0	5,693.3	5,826.8	5,676.9	22.1	25.7	-32.25	503.6	-1,065.7	249.5	215.7	33.79	7.382		
5,900.0	5,793.3	5,935.3	5,785.2	22.2	25.9	-31.91	506.4	-1,071.5	253.1	219.2	33.91	7.464		
6,000.0	5,893.3	6,044.0	5,893.8	22.4	26.0	-89.92	507.4	-1,073.6	255.0	220.9	34.15	7.468		
6,100.0	5,993.3	6,144.5	5,994.3	22.5	26.1	90.22	507.4	-1,073.6	255.0	220.6	34.40	7.412		
6,200.0	6,092.7	6,244.5	6,094.3	22.5	26.2	92.18	505.6	-1,073.6	255.2	221.2	33.99	7.508		
6,300.0	6,189.8	6,346.0	6,194.8	22.5	26.2	94.46	492.1	-1,073.6	255.8	222.5	33.32	7.676		
6,400.0	6,283.1	6,448.9	6,293.9	22.4	26.2	96.67	464.9	-1,073.6	256.8	224.2	32.58	7.882		
6,500.0	6,370.9	6,553.2	6,389.8	22.2	26.0	98.76	424.0	-1,073.6	258.0	226.2	31.82	8.109		
6,600.0	6,451.7	6,658.9	6,480.3	22.0	25.9	100.69	369.6	-1,073.6	259.5	228.4	31.13	8.338		
6,700.0	6,524.1	6,765.9	6,563.5	21.8	25.7	102.42	302.4	-1,073.6	261.2	230.6	30.56	8.547		
6,800.0	6,586.9	6,874.1	6,637.2	21.6	25.5	103.91	223.2	-1,073.6	262.8	232.6	30.18	8.707		
6,900.0	6,639.1	6,983.4	6,699.5	21.4	25.3	105.16	133.5	-1,073.6	264.2	234.2	30.05	8.793		
7,000.0	6,679.6	7,093.7	6,748.8	21.3	25.1	106.12	35.0	-1,073.6	265.5	235.2	30.23	8.781		
7,100.0	6,707.9	7,204.6	6,783.6	21.2	25.1	106.79	-70.2	-1,073.6	266.4	235.6	30.77	8.658		
7,200.0	6,723.5	7,315.9	6,802.8	21.2	25.1	107.15	-179.8	-1,073.6	266.9	235.2	31.67	8.426		
7,300.0	6,726.4	7,424.4	6,806.5	21.5	25.2	107.22	-288.1	-1,073.6	267.0	234.0	32.96	8.100		
7,400.0	6,725.7	7,524.4	6,805.8	21.9	25.5	107.22	-388.1	-1,073.6	267.0	232.4	34.61	7.713		
7,500.0	6,725.0	7,624.4	6,805.1	22.6	26.0	107.22	-488.1	-1,073.6	267.0	230.4	36.57	7.301		
7,600.0	6,724.3	7,724.4	6,804.4	23.6	26.6	107.22	-588.1	-1,073.6	267.0	228.2	38.77	6.885		
7,700.0	6,723.6	7,824.4	6,803.7	24.7	27.5	107.22	-688.1	-1,073.6	267.0	225.8	41.19	6.481		
7,800.0	6,722.9	7,924.4	6,803.0	25.9	28.4	107.22	-788.1	-1,073.6	267.0	223.2	43.79	6.096		
7,900.0	6,722.3	8,024.4	6,802.3	27.2	29.6	107.22	-888.1	-1,073.6	267.0	220.4	46.54	5.736		
8,000.0	6,721.6	8,124.4	6,801.6	28.6	30.8	107.22	-988.1	-1,073.6	267.0	217.6	49.41	5.403		
8,100.0	6,720.9	8,224.4	6,800.9	30.1	32.1	107.22	-1,088.1	-1,073.6	267.0	214.6	52.39	5.096		
8,200.0	6,720.2	8,324.4	6,800.2	31.6	33.5	107.22	-1,188.1	-1,073.6	267.0	211.5	55.45	4.815		
8,300.0	6,719.5	8,424.4	6,799.5	33.1	34.9	107.22	-1,288.1	-1,073.6	267.0	208.4	58.58	4.557		
8,400.0	6,718.8	8,524.4	6,798.8	34.7	36.4	107.22	-1,388.1	-1,073.6	267.0	205.2	61.78	4.321		
8,500.0	6,718.1	8,624.4	6,798.1	36.3	37.9	107.22	-1,488.1	-1,073.6	267.0	201.9	65.03	4.105		
8,600.0	6,717.4	8,724.4	6,797.4	38.0	39.5	107.22	-1,588.1	-1,073.6	267.0	198.6	68.32	3.907		
8,700.0	6,716.7	8,824.4	6,796.7	39.7	41.1	107.22	-1,688.1	-1,073.6	267.0	195.3	71.66	3.726		
8,800.0	6,716.0	8,924.4	6,796.0	41.4	42.8	107.22	-1,788.1	-1,073.6	267.0	191.9	75.02	3.559		
8,900.0	6,715.3	9,024.4	6,795.3	43.1	44.4	107.22	-1,888.1	-1,073.6	267.0	188.6	78.42	3.404		
9,000.0	6,714.6	9,124.4	6,794.6	44.8	46.1	107.22	-1,988.1	-1,073.6	267.0	185.1	81.84	3.262		
9,100.0	6,713.9	9,224.4	6,793.9	46.5	47.8	107.22	-2,088.1	-1,073.6	267.0	181.7	85.29	3.130		
9,200.0	6,713.2	9,324.4	6,793.2	48.3	49.5	107.22	-2,188.1	-1,073.6	267.0	178.2	88.75	3.008		
9,300.0	6,712.5	9,424.4	6,792.5	50.1	51.2	107.22	-2,288.1	-1,073.6	267.0	174.7	92.23	2.894		
9,400.0	6,711.8	9,524.4	6,791.8	51.8	52.9	107.22	-2,388.1	-1,073.6	267.0	171.2	95.73	2.789		
9,500.0	6,711.1	9,624.4	6,791.1	53.6	54.7	107.22	-2,488.1	-1,073.6	267.0	167.7	99.25	2.690		
9,600.0	6,710.4	9,724.4	6,790.4	55.4	56.5	107.22	-2,588.1	-1,073.6	267.0	164.2	102.77	2.598		
9,700.0	6,709.7	9,824.4	6,789.7	57.2	58.2	107.22	-2,688.1	-1,073.6	267.0	160.7	106.31	2.511		
9,800.0	6,709.0	9,924.4	6,789.0	59.0	60.0	107.22	-2,788.1	-1,073.6	267.0	157.1	109.85	2.430		
9,900.0	6,708.3	10,024.4	6,788.3	60.8	61.8	107.22	-2,888.1	-1,073.6	267.0	153.6	113.41	2.354		

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-323 - Wellbore #1 - Plan #1 (3-14-16)										Offset Site Error:		0.0 ft		
Survey Program:		0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
10,000.0	6,707.6	10,124.4	6,787.6	62.7	63.6	107.22	-2,988.1	-1,073.6	267.0	150.0	116.98	2.282				
10,100.0	6,706.9	10,224.4	6,786.9	64.5	65.4	107.22	-3,088.1	-1,073.6	267.0	146.4	120.55	2.215				
10,200.0	6,706.2	10,324.4	6,786.2	66.3	67.2	107.22	-3,188.1	-1,073.6	267.0	142.8	124.13	2.151				
10,300.0	6,705.5	10,424.4	6,785.5	68.2	69.0	107.22	-3,288.0	-1,073.6	267.0	139.3	127.72	2.090				
10,400.0	6,704.8	10,524.4	6,784.8	70.0	70.8	107.22	-3,388.0	-1,073.6	267.0	135.7	131.31	2.033				
10,500.0	6,704.1	10,624.4	6,784.1	71.8	72.7	107.22	-3,488.0	-1,073.6	267.0	132.1	134.91	1.979				
10,600.0	6,703.4	10,724.4	6,783.4	73.7	74.5	107.22	-3,588.0	-1,073.6	267.0	128.5	138.51	1.927				
10,700.0	6,702.7	10,824.4	6,782.7	75.5	76.3	107.22	-3,688.0	-1,073.6	267.0	124.9	142.12	1.879				
10,800.0	6,702.0	10,924.4	6,782.0	77.4	78.2	107.22	-3,788.0	-1,073.6	267.0	121.2	145.73	1.832				
10,900.0	6,701.3	11,024.4	6,781.3	79.3	80.0	107.22	-3,888.0	-1,073.6	267.0	117.6	149.34	1.788				
11,000.0	6,700.6	11,124.4	6,780.6	81.1	81.8	107.22	-3,988.0	-1,073.6	267.0	114.0	152.96	1.745				
11,100.0	6,699.9	11,224.4	6,779.9	83.0	83.7	107.22	-4,088.0	-1,073.6	267.0	110.4	156.59	1.705				
11,200.0	6,699.2	11,324.4	6,779.2	84.8	85.5	107.22	-4,188.0	-1,073.6	267.0	106.8	160.21	1.666				
11,300.0	6,698.5	11,424.4	6,778.5	86.7	87.4	107.22	-4,288.0	-1,073.6	267.0	103.1	163.84	1.629				
11,400.0	6,697.8	11,524.4	6,777.8	88.6	89.3	107.22	-4,388.0	-1,073.6	267.0	99.5	167.48	1.594				
11,500.0	6,697.1	11,624.4	6,777.1	90.5	91.1	107.22	-4,488.0	-1,073.6	267.0	95.9	171.11	1.560				
11,600.0	6,696.4	11,724.4	6,776.4	92.3	93.0	107.22	-4,588.0	-1,073.6	267.0	92.2	174.75	1.528				
11,700.0	6,695.7	11,824.4	6,775.7	94.2	94.8	107.22	-4,688.0	-1,073.6	267.0	88.6	178.39	1.497 Level 3				
11,800.0	6,695.0	11,924.4	6,775.0	96.1	96.7	107.22	-4,788.0	-1,073.6	267.0	84.9	182.03	1.467 Level 3				
11,900.0	6,694.3	12,024.4	6,774.3	98.0	98.6	107.22	-4,888.0	-1,073.6	267.0	81.3	185.67	1.438 Level 3				
12,000.0	6,693.6	12,124.4	6,773.6	99.8	100.5	107.22	-4,988.0	-1,073.6	267.0	77.7	189.32	1.410 Level 3				
12,100.0	6,692.9	12,224.4	6,772.9	101.7	102.3	107.22	-5,088.0	-1,073.6	267.0	74.0	192.97	1.384 Level 3				
12,200.0	6,692.2	12,324.4	6,772.2	103.6	104.2	107.22	-5,188.0	-1,073.6	267.0	70.4	196.62	1.358 Level 3				
12,300.0	6,691.5	12,424.4	6,771.5	105.5	106.1	107.22	-5,288.0	-1,073.6	267.0	66.7	200.27	1.333 Level 3				
12,400.0	6,690.8	12,524.4	6,770.8	107.4	107.9	107.22	-5,388.0	-1,073.6	267.0	63.1	203.92	1.309 Level 3				
12,500.0	6,690.1	12,624.4	6,770.1	109.3	109.8	107.22	-5,488.0	-1,073.6	267.0	59.4	207.57	1.286 Level 3				
12,600.0	6,689.4	12,724.4	6,769.5	111.2	111.7	107.22	-5,588.0	-1,073.6	267.0	55.7	211.23	1.264 Level 3				
12,700.0	6,688.7	12,824.4	6,768.8	113.1	113.6	107.22	-5,688.0	-1,073.6	267.0	52.1	214.88	1.242 Level 2				
12,800.0	6,688.0	12,924.4	6,768.1	114.9	115.5	107.22	-5,788.0	-1,073.6	267.0	48.4	218.54	1.222 Level 2				
12,900.0	6,687.3	13,024.4	6,767.4	116.8	117.4	107.22	-5,888.0	-1,073.6	267.0	44.8	222.20	1.201 Level 2				
13,000.0	6,686.6	13,124.4	6,766.7	118.7	119.2	107.22	-5,988.0	-1,073.6	267.0	41.1	225.86	1.182 Level 2				
13,100.0	6,685.9	13,224.4	6,766.0	120.6	121.1	107.22	-6,088.0	-1,073.6	267.0	37.5	229.52	1.163 Level 2				
13,200.0	6,685.3	13,324.4	6,765.3	122.5	123.0	107.22	-6,188.0	-1,073.6	267.0	33.8	233.19	1.145 Level 2				
13,300.0	6,684.6	13,424.4	6,764.6	124.4	124.9	107.22	-6,288.0	-1,073.6	267.0	30.1	236.85	1.127 Level 2				
13,400.0	6,683.9	13,524.4	6,763.9	126.3	126.8	107.22	-6,388.0	-1,073.6	267.0	26.5	240.51	1.110 Level 2				
13,500.0	6,683.2	13,624.4	6,763.2	128.2	128.7	107.22	-6,488.0	-1,073.6	267.0	22.8	244.18	1.093 Level 2				
13,600.0	6,682.5	13,724.4	6,762.5	130.1	130.6	107.22	-6,588.0	-1,073.6	267.0	19.1	247.84	1.077 Level 2				
13,700.0	6,681.8	13,824.4	6,761.8	132.0	132.5	107.22	-6,688.0	-1,073.6	267.0	15.5	251.51	1.061 Level 2				
13,800.0	6,681.1	13,924.4	6,761.1	133.9	134.3	107.22	-6,788.0	-1,073.6	267.0	11.8	255.18	1.046 Level 2				
13,900.0	6,680.4	14,024.4	6,760.4	135.8	136.2	107.22	-6,888.0	-1,073.6	267.0	8.1	258.85	1.031 Level 2				
14,000.0	6,679.7	14,124.4	6,759.7	137.7	138.1	107.22	-6,988.0	-1,073.6	267.0	4.5	262.52	1.017 Level 2				
14,100.0	6,679.0	14,224.4	6,759.0	139.6	140.0	107.22	-7,088.0	-1,073.6	267.0	0.8	266.19	1.003 Level 2				
14,200.0	6,678.3	14,324.4	6,758.3	141.5	141.9	107.22	-7,188.0	-1,073.6	267.0	-2.9	269.86	0.989 Level 1				
14,300.0	6,677.6	14,424.4	6,757.6	143.4	143.8	107.21	-7,288.0	-1,073.6	267.0	-6.6	273.53	0.976 Level 1				
14,381.8	6,677.0	14,506.2	6,757.0	144.9	145.4	107.21	-7,369.8	-1,073.6	267.0	-9.6	276.53	0.965 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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design				Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #1 (3-14-16)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance									
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-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	29.9	0.22	133.887				
200.0	200.0	200.0	200.0	0.3	0.3	-89.30	0.4	-30.1	30.1	29.4	0.67	44.629				
300.0	300.0	300.0	300.0	0.6	0.6	-89.30	0.4	-30.1	30.1	29.0	1.12	26.777				
400.0	400.0	400.0	400.0	0.8	0.8	-89.30	0.4	-30.1	30.1	28.5	1.57	19.127	CC, ES			
500.0	500.0	499.2	499.2	1.0	1.0	-88.45	0.8	-31.3	31.3	29.3	2.01	15.545				
600.0	600.0	598.4	598.3	1.2	1.2	-86.26	2.3	-34.9	35.0	32.5	2.46	14.251				
700.0	700.0	697.2	696.9	1.5	1.4	-83.49	4.7	-40.8	41.2	38.3	2.91	14.181				
800.0	800.0	795.7	795.0	1.7	1.7	-80.78	8.0	-49.1	50.0	46.6	3.37	14.847				
900.0	900.0	893.6	892.2	1.9	2.0	-78.44	12.2	-59.7	61.4	57.5	3.85	15.963				
1,000.0	1,000.0	990.9	988.5	2.1	2.3	-76.56	17.3	-72.4	75.4	71.0	4.34	17.348				
1,100.0	1,100.0	1,087.6	1,083.9	2.4	2.6	-17.02	23.3	-87.4	90.6	85.9	4.70	19.287				
1,200.0	1,199.9	1,183.9	1,178.5	2.6	2.9	-16.31	30.1	-104.5	105.9	100.8	5.15	20.588				
1,300.0	1,299.7	1,279.9	1,272.2	2.8	3.3	-15.99	37.8	-123.8	121.3	115.7	5.60	21.652				
1,400.0	1,399.3	1,375.5	1,365.0	3.0	3.8	-15.91	46.4	-145.1	136.5	130.5	6.06	22.523				
1,500.0	1,498.6	1,470.8	1,456.8	3.3	4.3	-16.00	55.8	-168.5	151.8	145.3	6.53	23.231				
1,600.0	1,597.5	1,568.8	1,550.9	3.6	4.8	-16.25	66.0	-194.2	166.3	159.3	7.02	23.700				
1,700.0	1,696.1	1,668.1	1,646.1	3.9	5.3	-16.71	76.4	-220.2	178.4	170.9	7.52	23.726				
1,800.0	1,794.2	1,767.6	1,741.6	4.2	5.9	-17.34	86.9	-246.3	188.0	180.0	8.03	23.410				
1,900.0	1,891.7	1,867.3	1,837.2	4.6	6.5	-18.16	97.3	-272.4	195.2	186.6	8.56	22.799				
2,000.0	1,988.9	1,967.1	1,932.9	5.0	7.1	-19.07	107.8	-298.6	201.1	192.0	9.13	22.041				
2,100.0	2,086.2	2,066.8	2,028.6	5.4	7.6	-19.93	118.3	-324.7	207.1	197.4	9.71	21.342				
2,200.0	2,183.4	2,166.6	2,124.3	5.8	8.2	-20.74	128.7	-350.9	213.2	202.9	10.30	20.698				
2,300.0	2,280.6	2,266.4	2,220.0	6.3	8.8	-21.50	139.2	-377.1	219.3	208.4	10.91	20.104				
2,400.0	2,377.9	2,366.1	2,315.8	6.7	9.4	-22.22	149.7	-403.2	225.4	213.9	11.53	19.554				
2,500.0	2,475.1	2,465.9	2,411.5	7.2	10.0	-22.91	160.1	-429.4	231.6	219.4	12.16	19.045				
2,600.0	2,572.3	2,565.7	2,507.2	7.7	10.6	-23.56	170.6	-455.5	237.8	225.0	12.80	18.573				
2,700.0	2,669.6	2,665.5	2,602.9	8.1	11.2	-24.18	181.0	-481.7	244.0	230.5	13.46	18.134				
2,800.0	2,766.8	2,765.2	2,698.6	8.6	11.8	-24.76	191.5	-507.9	250.2	236.1	14.12	17.725				
2,900.0	2,864.0	2,865.0	2,794.3	9.1	12.3	-25.32	202.0	-534.0	256.5	241.7	14.79	17.345				
3,000.0	2,961.3	2,964.8	2,890.0	9.6	12.9	-25.85	212.4	-560.2	262.8	247.3	15.47	16.989				
3,100.0	3,058.5	3,064.6	2,985.7	10.0	13.5	-26.36	222.9	-586.4	269.1	253.0	16.16	16.657				
3,200.0	3,155.7	3,164.3	3,081.4	10.5	14.1	-26.84	233.4	-612.5	275.5	258.6	16.85	16.346				
3,300.0	3,253.0	3,264.1	3,177.2	11.0	14.7	-27.30	243.8	-638.7	281.8	264.3	17.55	16.055				
3,400.0	3,350.2	3,363.9	3,272.9	11.5	15.3	-27.74	254.3	-664.8	288.2	269.9	18.26	15.781				
3,500.0	3,447.4	3,463.6	3,368.6	12.0	15.9	-28.16	264.8	-691.0	294.6	275.6	18.98	15.524				
3,600.0	3,544.7	3,563.4	3,464.3	12.5	16.5	-28.56	275.2	-717.2	301.0	281.3	19.70	15.281				
3,700.0	3,641.9	3,663.2	3,560.0	13.0	17.1	-28.95	285.7	-743.3	307.4	287.0	20.42	15.053				
3,800.0	3,739.1	3,763.0	3,655.7	13.5	17.7	-29.32	296.2	-769.5	313.9	292.7	21.15	14.837				
3,900.0	3,836.4	3,862.7	3,751.4	14.0	18.3	-29.68	306.6	-795.6	320.3	298.4	21.89	14.634				
4,000.0	3,933.6	3,962.5	3,847.1	14.5	18.9	-30.02	317.1	-821.8	326.8	304.1	22.63	14.441				
4,100.0	4,030.8	4,062.3	3,942.8	14.9	19.5	-30.35	327.6	-848.0	333.2	309.9	23.37	14.258				
4,200.0	4,128.1	4,162.1	4,038.6	15.4	20.1	-30.67	338.0	-874.1	339.7	315.6	24.12	14.085				
4,300.0	4,225.3	4,261.8	4,134.3	15.9	20.7	-30.97	348.5	-900.3	346.2	321.3	24.87	13.920				
4,400.0	4,322.5	4,361.6	4,230.0	16.4	21.3	-31.26	359.0	-926.4	352.7	327.1	25.62	13.764				
4,500.0	4,419.8	4,461.4	4,325.7	16.9	21.9	-31.55	369.4	-952.6	359.2	332.8	26.38	13.615				
4,600.0	4,517.0	4,561.1	4,421.4	17.4	22.5	-31.82	379.9	-978.8	365.7	338.6	27.14	13.474				
4,700.0	4,614.3	4,660.9	4,517.1	17.9	23.1	-32.08	390.4	-1,004.9	372.2	344.3	27.91	13.339				
4,800.0	4,711.5	4,760.7	4,612.8	18.4	23.7	-32.33	400.8	-1,031.1	378.8	350.1	28.67	13.210				
4,900.0	4,808.7	4,860.5	4,708.5	18.9	24.3	-32.58	411.3	-1,057.2	385.3	355.9	29.44	13.087				
5,000.0	4,906.0	4,960.2	4,804.2	19.4	24.9	-32.82	421.8	-1,083.4	391.9	361.6	30.21	12.969				

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #1 (3-14-16)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
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)			
5,100.0	5,003.2	5,060.0	4,900.0	19.9	25.5	-33.05	432.2	-1,109.6	398.4	367.4	30.99	12.857		
5,200.0	5,100.4	5,159.8	4,995.7	20.4	26.1	-33.27	442.7	-1,135.7	405.0	373.2	31.76	12.749		
5,300.0	5,197.8	5,259.5	5,091.3	20.9	26.7	-33.48	453.2	-1,161.9	412.2	379.7	32.50	12.682		
5,400.0	5,296.0	5,359.0	5,186.8	21.2	27.3	-33.48	463.6	-1,187.9	422.2	389.1	33.10	12.756		
5,500.0	5,394.7	5,473.4	5,297.1	21.5	27.8	-33.31	474.8	-1,216.1	433.5	399.9	33.59	12.906		
5,600.0	5,493.9	5,589.1	5,409.8	21.7	28.3	-33.09	484.5	-1,240.3	443.9	410.0	33.98	13.065		
5,700.0	5,593.5	5,705.4	5,524.0	22.0	28.7	-32.84	492.6	-1,260.4	453.6	419.4	34.29	13.232		
5,800.0	5,693.3	5,822.2	5,639.6	22.1	29.0	-32.54	498.9	-1,276.2	462.5	428.0	34.50	13.407		
5,900.0	5,793.3	5,939.5	5,756.2	22.2	29.2	-32.19	503.5	-1,287.7	470.6	436.0	34.63	13.591		
6,000.0	5,893.3	6,057.4	5,873.8	22.4	29.4	-90.08	506.3	-1,294.8	476.6	441.8	34.85	13.676		
6,100.0	5,993.3	6,175.6	5,992.1	22.5	29.5	90.11	507.4	-1,297.3	478.8	443.7	35.11	13.636		
6,200.0	6,092.7	6,276.2	6,092.7	22.5	29.6	91.36	507.4	-1,297.4	478.9	444.0	34.89	13.726		
6,300.0	6,189.8	6,376.6	6,192.9	22.5	29.7	93.67	503.7	-1,297.4	479.8	445.6	34.22	14.022		
6,400.0	6,283.1	6,480.2	6,295.0	22.4	29.7	96.01	486.6	-1,297.4	481.6	448.1	33.44	14.401		
6,500.0	6,370.9	6,586.8	6,396.7	22.2	29.7	98.26	454.7	-1,297.4	484.0	451.4	32.64	14.829		
6,600.0	6,451.7	6,696.7	6,495.7	22.0	29.5	100.38	407.5	-1,297.4	487.0	455.1	31.88	15.276		
6,700.0	6,524.1	6,809.7	6,589.5	21.8	29.4	102.32	344.5	-1,297.4	490.4	459.2	31.23	15.703		
6,800.0	6,586.9	6,925.8	6,675.1	21.6	29.2	104.04	266.2	-1,297.4	493.8	463.1	30.75	16.062		
6,900.0	6,639.1	7,044.9	6,749.5	21.4	29.0	105.49	173.4	-1,297.4	497.1	466.6	30.50	16.297		
7,000.0	6,679.6	7,166.5	6,809.6	21.3	28.8	106.63	67.9	-1,297.4	499.9	469.3	30.58	16.347		
7,100.0	6,707.9	7,290.1	6,852.8	21.2	28.7	107.44	-47.8	-1,297.4	501.9	470.9	31.03	16.175		
7,200.0	6,723.5	7,415.0	6,877.0	21.2	28.7	107.88	-170.2	-1,297.4	503.1	471.2	31.90	15.774		
7,300.0	6,726.4	7,532.8	6,881.9	21.5	28.8	107.99	-287.8	-1,297.4	503.4	470.2	33.17	15.178		
7,400.0	6,725.7	7,632.8	6,881.8	21.9	29.0	108.05	-387.8	-1,297.4	503.6	468.8	34.76	14.488		
7,500.0	6,725.0	7,732.8	6,881.6	22.6	29.4	108.11	-487.8	-1,297.4	503.8	467.1	36.65	13.745		
7,600.0	6,724.3	7,832.8	6,881.5	23.6	29.9	108.17	-587.8	-1,297.4	503.9	465.1	38.79	12.990		
7,700.0	6,723.6	7,932.8	6,881.3	24.7	30.5	108.23	-687.8	-1,297.4	504.1	463.0	41.15	12.250		
7,800.0	6,722.9	8,032.8	6,881.2	25.9	31.3	108.29	-787.8	-1,297.4	504.3	460.6	43.69	11.543		
7,900.0	6,722.3	8,132.7	6,881.1	27.2	32.2	108.35	-887.8	-1,297.4	504.5	458.1	46.37	10.878		
8,000.0	6,721.6	8,232.7	6,880.9	28.6	33.3	108.41	-987.8	-1,297.4	504.6	455.4	49.18	10.260		
8,100.0	6,720.9	8,332.7	6,880.8	30.1	34.4	108.47	-1,087.8	-1,297.4	504.8	452.7	52.10	9.690		
8,200.0	6,720.2	8,432.7	6,880.6	31.6	35.7	108.53	-1,187.8	-1,297.4	505.0	449.9	55.10	9.165		
8,300.0	6,719.5	8,532.7	6,880.5	33.1	37.0	108.59	-1,287.8	-1,297.4	505.2	447.0	58.17	8.684		
8,400.0	6,718.8	8,632.7	6,880.4	34.7	38.3	108.65	-1,387.8	-1,297.4	505.3	444.0	61.31	8.243		
8,500.0	6,718.1	8,732.7	6,880.2	36.3	39.8	108.71	-1,487.8	-1,297.4	505.5	441.0	64.50	7.838		
8,600.0	6,717.4	8,832.7	6,880.1	38.0	41.2	108.77	-1,587.8	-1,297.4	505.7	438.0	67.73	7.467		
8,700.0	6,716.7	8,932.7	6,879.9	39.7	42.8	108.83	-1,687.8	-1,297.4	505.9	434.9	71.00	7.125		
8,800.0	6,716.0	9,032.7	6,879.8	41.4	44.3	108.89	-1,787.8	-1,297.4	506.1	431.8	74.30	6.811		
8,900.0	6,715.3	9,132.7	6,879.7	43.1	45.9	108.95	-1,887.8	-1,297.4	506.2	428.6	77.63	6.521		
9,000.0	6,714.6	9,232.7	6,879.5	44.8	47.5	109.01	-1,987.8	-1,297.4	506.4	425.4	80.99	6.253		
9,100.0	6,713.9	9,332.7	6,879.4	46.5	49.2	109.07	-2,087.8	-1,297.4	506.6	422.2	84.36	6.005		
9,200.0	6,713.2	9,432.7	6,879.2	48.3	50.8	109.13	-2,187.8	-1,297.4	506.8	419.0	87.76	5.775		
9,300.0	6,712.5	9,532.7	6,879.1	50.1	52.5	109.19	-2,287.8	-1,297.4	507.0	415.8	91.17	5.561		
9,400.0	6,711.8	9,632.7	6,879.0	51.8	54.2	109.25	-2,387.8	-1,297.4	507.2	412.6	94.60	5.361		
9,500.0	6,711.1	9,732.7	6,878.8	53.6	55.9	109.31	-2,487.8	-1,297.4	507.3	409.3	98.04	5.175		
9,600.0	6,710.4	9,832.7	6,878.7	55.4	57.6	109.37	-2,587.7	-1,297.4	507.5	406.0	101.48	5.001		
9,700.0	6,709.7	9,932.7	6,878.5	57.2	59.3	109.43	-2,687.7	-1,297.4	507.7	402.8	104.94	4.838		
9,800.0	6,709.0	10,032.7	6,878.4	59.0	61.1	109.48	-2,787.7	-1,297.4	507.9	399.5	108.41	4.685		
9,900.0	6,708.3	10,132.7	6,878.3	60.8	62.8	109.54	-2,887.7	-1,297.4	508.1	396.2	111.88	4.541		
10,000.0	6,707.6	10,232.7	6,878.1	62.7	64.6	109.60	-2,987.7	-1,297.4	508.3	392.9	115.36	4.406		

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29M-423 - Wellbore #1 - Plan #1 (3-14-16)													Offset Site Error: 0.0 ft		
Survey Program: 0-MWD														Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (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			
10,100.0	6,706.9	10,332.7	6,878.0	64.5	66.4	109.66	-3,087.7	-1,297.4	508.5	389.6	118.85	4.278			
10,200.0	6,706.2	10,432.7	6,877.8	66.3	68.2	109.72	-3,187.7	-1,297.4	508.6	386.3	122.34	4.158			
10,300.0	6,705.5	10,532.7	6,877.7	68.2	70.0	109.78	-3,287.7	-1,297.4	508.8	383.0	125.84	4.044			
10,400.0	6,704.8	10,632.7	6,877.6	70.0	71.8	109.84	-3,387.7	-1,297.4	509.0	379.7	129.34	3.936			
10,500.0	6,704.1	10,732.7	6,877.4	71.8	73.6	109.90	-3,487.7	-1,297.4	509.2	376.4	132.84	3.833			
10,600.0	6,703.4	10,832.7	6,877.3	73.7	75.4	109.96	-3,587.7	-1,297.4	509.4	373.1	136.35	3.736			
10,700.0	6,702.7	10,932.7	6,877.1	75.5	77.2	110.02	-3,687.7	-1,297.4	509.6	369.7	139.86	3.644			
10,800.0	6,702.0	11,032.7	6,877.0	77.4	79.0	110.08	-3,787.7	-1,297.4	509.8	366.4	143.37	3.556			
10,900.0	6,701.3	11,132.7	6,876.9	79.3	80.8	110.14	-3,887.7	-1,297.4	510.0	363.1	146.88	3.472			
11,000.0	6,700.6	11,232.7	6,876.7	81.1	82.6	110.19	-3,987.7	-1,297.4	510.2	359.8	150.39	3.392			
11,100.0	6,699.9	11,332.7	6,876.6	83.0	84.5	110.25	-4,087.7	-1,297.4	510.4	356.5	153.91	3.316			
11,200.0	6,699.2	11,432.7	6,876.4	84.8	86.3	110.31	-4,187.7	-1,297.4	510.6	353.1	157.42	3.243			
11,300.0	6,698.5	11,532.7	6,876.3	86.7	88.1	110.37	-4,287.7	-1,297.4	510.8	349.8	160.94	3.174			
11,400.0	6,697.8	11,632.7	6,876.2	88.6	90.0	110.43	-4,387.7	-1,297.4	510.9	346.5	164.46	3.107			
11,500.0	6,697.1	11,732.7	6,876.0	90.5	91.8	110.49	-4,487.7	-1,297.4	511.1	343.2	167.98	3.043			
11,600.0	6,696.4	11,832.7	6,875.9	92.3	93.7	110.55	-4,587.7	-1,297.4	511.3	339.8	171.49	2.982			
11,700.0	6,695.7	11,932.7	6,875.8	94.2	95.5	110.61	-4,687.7	-1,297.4	511.5	336.5	175.01	2.923			
11,800.0	6,695.0	12,032.7	6,875.6	96.1	97.4	110.66	-4,787.7	-1,297.4	511.7	333.2	178.53	2.866			
11,900.0	6,694.3	12,132.7	6,875.5	98.0	99.2	110.72	-4,887.7	-1,297.4	511.9	329.9	182.05	2.812			
12,000.0	6,693.6	12,232.7	6,875.3	99.8	101.1	110.78	-4,987.7	-1,297.4	512.1	326.6	185.56	2.760			
12,100.0	6,692.9	12,332.7	6,875.2	101.7	103.0	110.84	-5,087.7	-1,297.4	512.3	323.2	189.08	2.710			
12,200.0	6,692.2	12,432.7	6,875.1	103.6	104.8	110.90	-5,187.7	-1,297.4	512.5	319.9	192.59	2.661			
12,300.0	6,691.5	12,532.7	6,874.9	105.5	106.7	110.96	-5,287.7	-1,297.4	512.7	316.6	196.11	2.614			
12,400.0	6,690.8	12,632.7	6,874.8	107.4	108.6	111.01	-5,387.7	-1,297.4	512.9	313.3	199.62	2.569			
12,500.0	6,690.1	12,732.7	6,874.6	109.3	110.4	111.07	-5,487.7	-1,297.4	513.1	310.0	203.14	2.526			
12,600.0	6,689.4	12,832.7	6,874.5	111.2	112.3	111.13	-5,587.7	-1,297.4	513.3	306.7	206.65	2.484			
12,700.0	6,688.7	12,932.7	6,874.4	113.1	114.2	111.19	-5,687.7	-1,297.4	513.5	303.4	210.16	2.444			
12,800.0	6,688.0	13,032.7	6,874.2	114.9	116.0	111.25	-5,787.7	-1,297.4	513.7	300.1	213.67	2.404			
12,900.0	6,687.3	13,132.7	6,874.1	116.8	117.9	111.30	-5,887.7	-1,297.4	513.9	296.8	217.18	2.366			
13,000.0	6,686.6	13,232.7	6,873.9	118.7	119.8	111.36	-5,987.7	-1,297.4	514.1	293.5	220.68	2.330			
13,100.0	6,685.9	13,332.7	6,873.8	120.6	121.7	111.42	-6,087.7	-1,297.4	514.3	290.2	224.19	2.294			
13,200.0	6,685.3	13,432.7	6,873.7	122.5	123.5	111.48	-6,187.7	-1,297.4	514.5	286.9	227.69	2.260			
13,300.0	6,684.6	13,532.7	6,873.5	124.4	125.4	111.54	-6,287.7	-1,297.4	514.8	283.6	231.20	2.226			
13,400.0	6,683.9	13,632.7	6,873.4	126.3	127.3	111.59	-6,387.7	-1,297.4	515.0	280.3	234.70	2.194			
13,500.0	6,683.2	13,732.7	6,873.2	128.2	129.2	111.65	-6,487.7	-1,297.4	515.2	277.0	238.20	2.163			
13,600.0	6,682.5	13,832.7	6,873.1	130.1	131.1	111.71	-6,587.7	-1,297.4	515.4	273.7	241.70	2.132			
13,700.0	6,681.8	13,932.7	6,873.0	132.0	132.9	111.77	-6,687.7	-1,297.4	515.6	270.4	245.19	2.103			
13,800.0	6,681.1	14,032.7	6,872.8	133.9	134.8	111.82	-6,787.7	-1,297.4	515.8	267.1	248.69	2.074			
13,900.0	6,680.4	14,132.7	6,872.7	135.8	136.7	111.88	-6,887.7	-1,297.4	516.0	263.8	252.18	2.046			
14,000.0	6,679.7	14,232.7	6,872.5	137.7	138.6	111.94	-6,987.7	-1,297.4	516.2	260.5	255.67	2.019			
14,100.0	6,679.0	14,332.7	6,872.4	139.6	140.5	112.00	-7,087.7	-1,297.4	516.4	257.2	259.16	1.993			
14,200.0	6,678.3	14,432.7	6,872.3	141.5	142.4	112.05	-7,187.7	-1,297.4	516.6	254.0	262.65	1.967			
14,300.0	6,677.6	14,532.6	6,872.1	143.4	144.3	112.11	-7,287.7	-1,297.4	516.8	250.7	266.13	1.942			
14,381.8	6,677.0	14,614.5	6,872.0	144.9	145.8	112.16	-7,369.5	-1,297.4	517.0	248.0	268.98	1.922 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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #1 (3-14-16)													Offset Site Error:		0.0 ft	
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
0.0	0.0	0.0	0.0	0.0	0.0	89.98	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	0.22	66.939				
200.0	200.0	200.0	200.0	0.3	0.3	89.98	0.0	15.0	15.0	14.4	0.67	22.313				
300.0	300.0	300.0	300.0	0.6	0.6	89.98	0.0	15.0	15.0	13.9	1.12	13.388				
400.0	400.0	400.0	400.0	0.8	0.8	89.98	0.0	15.0	15.0	13.5	1.57	9.563				
500.0	500.0	500.0	500.0	1.0	1.0	89.98	0.0	15.0	15.0	13.0	2.02	7.438				
600.0	600.0	600.0	600.0	1.2	1.2	89.98	0.0	15.0	15.0	12.6	2.47	6.085				
700.0	700.0	700.0	700.0	1.5	1.5	89.98	0.0	15.0	15.0	12.1	2.92	5.149				
800.0	800.0	800.0	800.0	1.7	1.7	89.98	0.0	15.0	15.0	11.7	3.37	4.463				
900.0	900.0	900.0	900.0	1.9	1.9	89.98	0.0	15.0	15.0	11.2	3.82	3.938				
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.98	0.0	15.0	15.0	10.8	4.27	3.523 CC				
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	150.65	0.0	15.0	16.2	11.5	4.71	3.431				
1,200.0	1,199.9	1,199.9	1,199.9	2.6	2.6	156.23	0.0	15.0	19.7	14.5	5.15	3.822				
1,300.0	1,299.7	1,300.3	1,300.3	2.8	2.8	160.73	0.9	14.0	24.6	19.1	5.58	4.415				
1,400.0	1,399.3	1,400.8	1,400.7	3.0	3.0	162.98	3.4	11.0	29.8	23.8	6.01	4.965				
1,500.0	1,498.6	1,501.4	1,501.1	3.3	3.3	163.94	7.7	6.0	35.2	28.7	6.44	5.464				
1,600.0	1,597.5	1,602.2	1,601.4	3.6	3.5	164.10	13.7	-1.0	40.7	33.8	6.87	5.917				
1,700.0	1,696.1	1,703.1	1,701.6	3.9	3.7	163.74	21.5	-10.1	46.2	38.9	7.31	6.326				
1,800.0	1,794.2	1,804.1	1,801.5	4.2	4.0	163.04	30.9	-21.2	51.9	44.2	7.76	6.696				
1,900.0	1,891.7	1,905.2	1,901.2	4.6	4.3	162.10	42.1	-34.3	57.8	49.6	8.22	7.026				
2,000.0	1,988.9	2,006.0	2,000.0	5.0	4.6	160.69	54.9	-49.3	62.7	53.9	8.74	7.169				
2,100.0	2,086.2	2,105.9	2,097.9	5.4	5.0	159.26	67.9	-64.5	67.1	57.8	9.28	7.228				
2,200.0	2,183.4	2,205.8	2,195.8	5.8	5.3	158.01	80.9	-79.8	71.5	61.7	9.84	7.268				
2,300.0	2,280.6	2,305.7	2,293.6	6.3	5.7	156.91	93.9	-95.0	76.0	65.6	10.42	7.294				
2,400.0	2,377.9	2,405.5	2,391.5	6.7	6.1	155.93	106.9	-110.3	80.5	69.5	11.02	7.309				
2,500.0	2,475.1	2,505.4	2,489.3	7.2	6.5	155.06	119.9	-125.5	85.1	73.4	11.63	7.315				
2,600.0	2,572.3	2,605.3	2,587.2	7.7	6.9	154.27	132.9	-140.8	89.6	77.4	12.25	7.314				
2,700.0	2,669.6	2,705.2	2,685.1	8.1	7.3	153.56	145.9	-156.0	94.2	81.3	12.89	7.307				
2,800.0	2,766.8	2,805.1	2,782.9	8.6	7.7	152.91	158.9	-171.3	98.8	85.2	13.53	7.297				
2,900.0	2,864.0	2,905.0	2,880.8	9.1	8.1	152.33	171.9	-186.5	103.3	89.2	14.19	7.283				
3,000.0	2,961.3	3,004.9	2,978.6	9.6	8.5	151.79	184.9	-201.8	107.9	93.1	14.85	7.267				
3,100.0	3,058.5	3,104.8	3,076.5	10.0	8.9	151.29	197.9	-217.0	112.5	97.0	15.52	7.250				
3,200.0	3,155.7	3,204.7	3,174.3	10.5	9.3	150.84	210.9	-232.3	117.2	101.0	16.20	7.232				
3,300.0	3,253.0	3,304.5	3,272.2	11.0	9.8	150.42	223.9	-247.5	121.8	104.9	16.88	7.213				
3,400.0	3,350.2	3,404.4	3,370.1	11.5	10.2	150.03	237.0	-262.8	126.4	108.8	17.57	7.194				
3,500.0	3,447.4	3,504.3	3,467.9	12.0	10.6	149.67	250.0	-278.0	131.0	112.8	18.27	7.175				
3,600.0	3,544.7	3,604.2	3,565.8	12.5	11.0	149.33	263.0	-293.3	135.7	116.7	18.96	7.155				
3,700.0	3,641.9	3,704.1	3,663.6	13.0	11.5	149.02	276.0	-308.5	140.3	120.7	19.66	7.136				
3,800.0	3,739.1	3,804.0	3,761.5	13.5	11.9	148.72	289.0	-323.7	145.0	124.6	20.37	7.117				
3,900.0	3,836.4	3,903.9	3,859.4	14.0	12.3	148.44	302.0	-339.0	149.6	128.5	21.08	7.099				
4,000.0	3,933.6	4,003.8	3,957.2	14.5	12.7	148.18	315.0	-354.2	154.3	132.5	21.79	7.081				
4,100.0	4,030.8	4,103.7	4,055.1	14.9	13.2	147.94	328.0	-369.5	158.9	136.4	22.50	7.063				
4,200.0	4,128.1	4,203.5	4,152.9	15.4	13.6	147.71	341.0	-384.7	163.6	140.4	23.22	7.046				
4,300.0	4,225.3	4,303.4	4,250.8	15.9	14.0	147.49	354.0	-400.0	168.3	144.3	23.94	7.029				
4,400.0	4,322.5	4,403.3	4,348.7	16.4	14.5	147.28	367.0	-415.2	172.9	148.3	24.66	7.013				
4,500.0	4,419.8	4,503.2	4,446.5	16.9	14.9	147.09	380.0	-430.5	177.6	152.2	25.38	6.997				
4,600.0	4,517.0	4,603.1	4,544.4	17.4	15.3	146.90	393.0	-445.7	182.3	156.2	26.10	6.982				
4,700.0	4,614.3	4,703.0	4,642.2	17.9	15.8	146.73	406.0	-461.0	186.9	160.1	26.83	6.967				
4,800.0	4,711.5	4,802.9	4,740.1	18.4	16.2	146.56	419.0	-476.2	191.6	164.0	27.56	6.953				
4,900.0	4,808.7	4,902.8	4,837.9	18.9	16.6	146.40	432.0	-491.5	196.3	168.0	28.29	6.939				
5,000.0	4,906.0	5,002.7	4,935.8	19.4	17.1	146.25	445.0	-506.7	200.9	171.9	29.02	6.925				

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #1 (3-14-16)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
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)			
5,100.0	5,003.2	5,102.6	5,033.7	19.9	17.5	146.10	458.0	-522.0	205.6	175.9	29.75	6.912		
5,200.0	5,100.4	5,200.0	5,129.1	20.4	17.9	145.97	470.7	-536.8	210.3	179.8	30.47	6.902		
5,300.0	5,197.8	5,296.8	5,224.3	20.9	18.2	146.08	482.2	-550.3	215.7	184.6	31.07	6.943		
5,400.0	5,296.0	5,391.3	5,317.7	21.2	18.5	146.31	491.4	-561.1	220.7	189.2	31.54	6.997		
5,500.0	5,394.7	5,485.8	5,411.5	21.5	18.7	146.58	498.6	-569.5	225.3	193.4	31.94	7.054		
5,600.0	5,493.9	5,580.1	5,505.5	21.7	18.9	146.91	503.7	-575.5	229.5	197.2	32.26	7.112		
5,700.0	5,593.5	5,674.3	5,599.6	22.0	19.1	147.29	506.9	-579.2	233.1	200.6	32.50	7.173		
5,800.0	5,693.3	5,768.5	5,693.7	22.1	19.2	147.71	508.0	-580.5	236.3	203.7	32.67	7.235		
5,900.0	5,793.3	5,868.0	5,793.3	22.2	19.4	147.98	508.0	-580.5	238.0	205.2	32.84	7.248		
6,000.0	5,893.3	5,968.1	5,893.3	22.4	19.5	89.90	507.4	-580.5	238.0	204.9	33.10	7.191		
6,009.6	5,902.9	5,977.6	5,902.9	22.4	19.5	-89.99	507.0	-580.5	238.0	204.9	33.10	7.191		
6,100.0	5,993.3	6,067.1	5,991.7	22.5	19.5	-87.75	497.1	-580.5	238.2	205.4	32.76	7.271		
6,200.0	6,092.7	6,164.2	6,086.2	22.5	19.5	-84.72	474.7	-580.5	239.0	207.0	32.08	7.450		
6,300.0	6,189.8	6,259.9	6,175.7	22.5	19.4	-81.83	441.0	-580.5	240.5	209.2	31.32	7.679		
6,400.0	6,283.1	6,354.3	6,259.2	22.4	19.2	-79.12	397.2	-580.5	242.4	211.9	30.54	7.938		
6,500.0	6,370.9	6,447.4	6,335.7	22.2	19.0	-76.64	344.2	-580.5	244.7	214.9	29.80	8.213		
6,600.0	6,451.7	6,539.5	6,404.4	22.0	18.8	-74.42	283.0	-580.5	247.2	218.0	29.14	8.481		
6,700.0	6,524.1	6,630.6	6,464.7	21.8	18.6	-72.48	214.7	-580.5	249.7	221.0	28.62	8.723		
6,800.0	6,586.9	6,721.0	6,516.1	21.6	18.4	-70.84	140.4	-580.5	252.0	223.8	28.27	8.914		
6,900.0	6,639.1	6,810.7	6,558.0	21.4	18.2	-69.50	61.2	-580.5	254.1	226.0	28.15	9.028		
7,000.0	6,679.6	6,900.0	6,590.2	21.3	18.1	-68.47	-22.1	-580.5	255.9	227.6	28.30	9.041		
7,100.0	6,707.9	6,988.7	6,612.4	21.2	18.0	-67.76	-107.8	-580.5	257.1	228.4	28.78	8.935		
7,200.0	6,723.5	7,077.2	6,624.5	21.2	18.1	-67.36	-195.5	-580.5	257.9	228.3	29.58	8.718		
7,300.0	6,726.4	7,169.2	6,626.9	21.5	18.6	-67.30	-287.4	-580.5	258.0	227.2	30.78	8.381		
7,400.0	6,725.7	7,269.2	6,626.7	21.9	19.4	-67.42	-387.4	-580.5	257.8	225.3	32.51	7.929		
7,500.0	6,725.0	7,369.2	6,626.6	22.6	20.5	-67.53	-487.4	-580.5	257.6	223.0	34.52	7.461		
7,600.0	6,724.3	7,469.2	6,626.5	23.6	21.6	-67.65	-587.4	-580.5	257.3	220.6	36.78	6.997		
7,700.0	6,723.6	7,569.2	6,626.3	24.7	22.9	-67.76	-687.4	-580.5	257.1	217.9	39.25	6.552		
7,800.0	6,722.9	7,669.2	6,626.2	25.9	24.3	-67.88	-787.4	-580.5	256.9	215.0	41.88	6.134		
7,900.0	6,722.3	7,769.2	6,626.0	27.2	25.7	-67.99	-887.4	-580.5	256.7	212.1	44.66	5.748		
8,000.0	6,721.6	7,869.2	6,625.9	28.6	27.2	-68.11	-987.4	-580.5	256.5	208.9	47.56	5.393		
8,100.0	6,720.9	7,969.2	6,625.8	30.1	28.8	-68.22	-1,087.4	-580.5	256.3	205.7	50.56	5.069		
8,200.0	6,720.2	8,069.2	6,625.6	31.6	30.3	-68.34	-1,187.4	-580.5	256.1	202.5	53.64	4.774		
8,300.0	6,719.5	8,169.2	6,625.5	33.1	31.9	-68.46	-1,287.4	-580.5	255.9	199.1	56.79	4.506		
8,400.0	6,718.8	8,269.2	6,625.3	34.7	33.6	-68.57	-1,387.4	-580.5	255.7	195.7	60.00	4.261		
8,500.0	6,718.1	8,369.2	6,625.2	36.3	35.3	-68.69	-1,487.4	-580.5	255.5	192.2	63.27	4.038		
8,600.0	6,717.4	8,469.2	6,625.1	38.0	37.0	-68.81	-1,587.4	-580.5	255.3	188.7	66.58	3.834		
8,700.0	6,716.7	8,569.2	6,624.9	39.7	38.7	-68.92	-1,687.4	-580.5	255.1	185.2	69.93	3.648		
8,800.0	6,716.0	8,669.2	6,624.8	41.4	40.4	-69.04	-1,787.4	-580.5	254.9	181.6	73.31	3.477		
8,900.0	6,715.3	8,769.2	6,624.7	43.1	42.1	-69.16	-1,887.4	-580.5	254.7	178.0	76.72	3.319		
9,000.0	6,714.6	8,869.2	6,624.5	44.8	43.9	-69.27	-1,987.4	-580.5	254.5	174.3	80.16	3.174		
9,100.0	6,713.9	8,969.2	6,624.4	46.5	45.7	-69.39	-2,087.4	-580.5	254.3	170.7	83.63	3.041		
9,200.0	6,713.2	9,069.2	6,624.2	48.3	47.5	-69.51	-2,187.4	-580.5	254.1	167.0	87.12	2.917		
9,300.0	6,712.5	9,169.2	6,624.1	50.1	49.3	-69.63	-2,287.4	-580.5	253.9	163.3	90.63	2.801		
9,400.0	6,711.8	9,269.2	6,624.0	51.8	51.1	-69.75	-2,387.4	-580.5	253.7	159.5	94.15	2.694		
9,500.0	6,711.1	9,369.2	6,623.8	53.6	52.9	-69.86	-2,487.4	-580.5	253.5	155.8	97.70	2.595		
9,600.0	6,710.4	9,469.2	6,623.7	55.4	54.7	-69.98	-2,587.4	-580.5	253.3	152.1	101.26	2.502		
9,700.0	6,709.7	9,569.2	6,623.5	57.2	56.5	-70.10	-2,687.4	-580.5	253.1	148.3	104.83	2.415		
9,800.0	6,709.0	9,669.2	6,623.4	59.0	58.3	-70.22	-2,787.4	-580.5	252.9	144.5	108.42	2.333		
9,900.0	6,708.3	9,769.2	6,623.3	60.8	60.2	-70.34	-2,887.4	-580.5	252.7	140.7	112.02	2.256		

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-143 - Wellbore #1 - Plan #1 (3-14-16)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,000.0	6,707.6	9,869.2	6,623.1	62.7	62.0	-70.46	-2,987.4	-580.5	252.6	136.9	115.63	2.184		
10,100.0	6,706.9	9,969.2	6,623.0	64.5	63.9	-70.58	-3,087.4	-580.5	252.4	133.1	119.25	2.116		
10,200.0	6,706.2	10,069.2	6,622.8	66.3	65.7	-70.70	-3,187.4	-580.5	252.2	129.3	122.89	2.052		
10,300.0	6,705.5	10,169.2	6,622.7	68.2	67.6	-70.82	-3,287.4	-580.5	252.0	125.5	126.53	1.992		
10,400.0	6,704.8	10,269.1	6,622.6	70.0	69.4	-70.94	-3,387.4	-580.5	251.8	121.6	130.18	1.934		
10,500.0	6,704.1	10,369.1	6,622.4	71.8	71.3	-71.06	-3,487.4	-580.5	251.6	117.8	133.84	1.880		
10,600.0	6,703.4	10,469.1	6,622.3	73.7	73.1	-71.18	-3,587.4	-580.5	251.5	113.9	137.51	1.829		
10,700.0	6,702.7	10,569.1	6,622.1	75.5	75.0	-71.30	-3,687.4	-580.5	251.3	110.1	141.19	1.780		
10,800.0	6,702.0	10,669.1	6,622.0	77.4	76.9	-71.42	-3,787.4	-580.5	251.1	106.2	144.88	1.733		
10,900.0	6,701.3	10,769.1	6,621.9	79.3	78.7	-71.54	-3,887.4	-580.5	250.9	102.4	148.57	1.689		
11,000.0	6,700.6	10,869.1	6,621.7	81.1	80.6	-71.66	-3,987.4	-580.5	250.7	98.5	152.27	1.647		
11,100.0	6,699.9	10,969.1	6,621.6	83.0	82.5	-71.78	-4,087.4	-580.5	250.6	94.6	155.98	1.606		
11,200.0	6,699.2	11,069.1	6,621.4	84.8	84.4	-71.90	-4,187.4	-580.5	250.4	90.7	159.69	1.568		
11,300.0	6,698.5	11,169.1	6,621.3	86.7	86.2	-72.03	-4,287.4	-580.5	250.2	86.8	163.41	1.531		
11,400.0	6,697.8	11,269.1	6,621.2	88.6	88.1	-72.15	-4,387.4	-580.5	250.1	82.9	167.14	1.496 Level 3		
11,500.0	6,697.1	11,369.1	6,621.0	90.5	90.0	-72.27	-4,487.4	-580.5	249.9	79.0	170.87	1.462 Level 3		
11,600.0	6,696.4	11,469.1	6,620.9	92.3	91.9	-72.39	-4,587.4	-580.5	249.7	75.1	174.61	1.430 Level 3		
11,700.0	6,695.7	11,569.1	6,620.7	94.2	93.8	-72.51	-4,687.4	-580.5	249.5	71.2	178.36	1.399 Level 3		
11,800.0	6,695.0	11,669.1	6,620.6	96.1	95.7	-72.64	-4,787.4	-580.5	249.4	67.3	182.11	1.369 Level 3		
11,900.0	6,694.3	11,769.1	6,620.5	98.0	97.6	-72.76	-4,887.4	-580.5	249.2	63.3	185.86	1.341 Level 3		
12,000.0	6,693.6	11,869.1	6,620.3	99.8	99.4	-72.88	-4,987.4	-580.5	249.0	59.4	189.63	1.313 Level 3		
12,100.0	6,692.9	11,969.1	6,620.2	101.7	101.3	-73.00	-5,087.4	-580.5	248.9	55.5	193.39	1.287 Level 3		
12,200.0	6,692.2	12,069.1	6,620.0	103.6	103.2	-73.13	-5,187.4	-580.5	248.7	51.6	197.16	1.261 Level 3		
12,300.0	6,691.5	12,169.1	6,619.9	105.5	105.1	-73.25	-5,287.3	-580.5	248.6	47.6	200.94	1.237 Level 2		
12,400.0	6,690.8	12,269.1	6,619.8	107.4	107.0	-73.37	-5,387.3	-580.5	248.4	43.7	204.72	1.213 Level 2		
12,500.0	6,690.1	12,369.1	6,619.6	109.3	108.9	-73.50	-5,487.3	-580.5	248.2	39.7	208.51	1.191 Level 2		
12,600.0	6,689.4	12,469.1	6,619.5	111.2	110.8	-73.62	-5,587.3	-580.5	248.1	35.8	212.30	1.169 Level 2		
12,700.0	6,688.7	12,569.1	6,619.3	113.1	112.7	-73.75	-5,687.3	-580.5	247.9	31.8	216.09	1.147 Level 2		
12,800.0	6,688.0	12,669.1	6,619.2	114.9	114.6	-73.87	-5,787.3	-580.5	247.8	27.9	219.89	1.127 Level 2		
12,900.0	6,687.3	12,769.1	6,619.1	116.8	116.5	-73.99	-5,887.3	-580.5	247.6	23.9	223.69	1.107 Level 2		
13,000.0	6,686.6	12,869.1	6,618.9	118.7	118.4	-74.12	-5,987.3	-580.5	247.5	20.0	227.50	1.088 Level 2		
13,100.0	6,685.9	12,969.1	6,618.8	120.6	120.3	-74.24	-6,087.3	-580.5	247.3	16.0	231.31	1.069 Level 2		
13,200.0	6,685.3	13,069.1	6,618.6	122.5	122.2	-74.37	-6,187.3	-580.5	247.2	12.0	235.13	1.051 Level 2		
13,300.0	6,684.6	13,169.1	6,618.5	124.4	124.1	-74.49	-6,287.3	-580.5	247.0	8.1	238.95	1.034 Level 2		
13,400.0	6,683.9	13,269.1	6,618.4	126.3	126.0	-74.62	-6,387.3	-580.5	246.9	4.1	242.77	1.017 Level 2		
13,500.0	6,683.2	13,369.1	6,618.2	128.2	127.9	-74.74	-6,487.3	-580.5	246.7	0.1	246.60	1.000 Level 2		
13,600.0	6,682.5	13,469.1	6,618.1	130.1	129.8	-74.87	-6,587.3	-580.5	246.6	-3.9	250.43	0.985 Level 1		
13,700.0	6,681.8	13,569.1	6,617.9	132.0	131.7	-74.99	-6,687.3	-580.5	246.4	-7.8	254.26	0.969 Level 1		
13,800.0	6,681.1	13,669.1	6,617.8	133.9	133.6	-75.12	-6,787.3	-580.5	246.3	-11.8	258.10	0.954 Level 1		
13,900.0	6,680.4	13,769.1	6,617.7	135.8	135.5	-75.24	-6,887.3	-580.5	246.1	-15.8	261.94	0.940 Level 1		
14,000.0	6,679.7	13,869.1	6,617.5	137.7	137.4	-75.37	-6,987.3	-580.5	246.0	-19.8	265.79	0.926 Level 1		
14,100.0	6,679.0	13,969.1	6,617.4	139.6	139.3	-75.50	-7,087.3	-580.5	245.8	-23.8	269.64	0.912 Level 1		
14,200.0	6,678.3	14,069.1	6,617.3	141.5	141.2	-75.62	-7,187.3	-580.5	245.7	-27.8	273.49	0.898 Level 1		
14,300.0	6,677.6	14,169.1	6,617.1	143.4	143.1	-75.75	-7,287.3	-580.5	245.6	-31.8	277.34	0.885 Level 1		
14,361.2	6,677.1	14,230.3	6,617.0	144.6	144.3	-75.82	-7,348.5	-580.5	245.5	-34.2	279.70	0.878 Level 1		
14,381.8	6,677.0	14,249.2	6,617.0	144.9	144.6	-75.85	-7,367.4	-580.5	245.5	-35.0	280.46	0.875 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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-203 - Wellbore #1 - Plan #1 (3-14-16)													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth Depth (ft)	Vertical Depth (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	90.46	-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	0.22	199.583			
200.0	200.0	200.0	200.0	0.3	0.3	90.46	-0.4	44.9	44.9	44.2	0.67	66.528			
300.0	300.0	300.0	300.0	0.6	0.6	90.46	-0.4	44.9	44.9	43.7	1.12	39.917			
400.0	400.0	400.0	400.0	0.8	0.8	90.46	-0.4	44.9	44.9	43.3	1.57	28.512			
500.0	500.0	500.0	500.0	1.0	1.0	90.46	-0.4	44.9	44.9	42.8	2.02	22.176			
600.0	600.0	600.0	600.0	1.2	1.2	90.46	-0.4	44.9	44.9	42.4	2.47	18.144			
700.0	700.0	700.0	700.0	1.5	1.5	90.46	-0.4	44.9	44.9	41.9	2.92	15.353			
800.0	800.0	800.0	800.0	1.7	1.7	90.46	-0.4	44.9	44.9	41.5	3.37	13.306			
900.0	900.0	900.0	900.0	1.9	1.9	90.46	-0.4	44.9	44.9	41.0	3.82	11.740			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.46	-0.4	44.9	44.9	40.6	4.27	10.504 CC, ES			
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	149.53	-0.4	44.9	46.0	41.3	4.71	9.755			
1,200.0	1,199.9	1,199.9	1,199.9	2.6	2.6	151.81	-0.4	44.9	49.4	44.3	5.15	9.592			
1,300.0	1,299.7	1,299.7	1,299.7	2.8	2.8	154.98	-0.4	44.9	55.3	49.7	5.59	9.888			
1,400.0	1,399.3	1,399.3	1,399.3	3.0	3.0	158.41	-0.4	44.9	63.7	57.6	6.03	10.566			
1,500.0	1,498.6	1,498.6	1,498.6	3.3	3.3	161.68	-0.4	44.9	74.7	68.3	6.46	11.566			
1,600.0	1,597.5	1,597.5	1,597.5	3.6	3.5	164.54	-0.4	44.9	88.5	81.6	6.89	12.834			
1,700.0	1,696.1	1,696.1	1,696.1	3.9	3.7	166.95	-0.4	44.9	104.9	97.6	7.32	14.323			
1,800.0	1,794.2	1,794.2	1,794.2	4.2	3.9	168.93	-0.4	44.9	124.0	116.3	7.75	15.996			
1,900.0	1,891.7	1,891.7	1,891.7	4.6	4.1	170.54	-0.4	44.9	145.7	137.6	8.18	17.823			
2,000.0	1,988.9	1,988.9	1,988.9	5.0	4.4	171.84	-0.4	44.9	168.8	160.2	8.63	19.563			
2,100.0	2,086.2	2,089.1	2,089.1	5.4	4.6	172.62	0.6	44.6	191.3	182.2	9.09	21.042			
2,200.0	2,183.4	2,190.5	2,190.4	5.8	4.8	172.69	4.2	43.5	212.1	202.6	9.56	22.189			
2,300.0	2,280.6	2,292.6	2,292.3	6.3	5.0	172.24	10.3	41.6	231.2	221.2	10.04	23.037			
2,400.0	2,377.9	2,395.2	2,394.5	6.7	5.3	171.38	19.2	38.9	248.6	238.0	10.52	23.621			
2,500.0	2,475.1	2,498.3	2,496.9	7.2	5.5	170.16	30.7	35.3	264.3	253.3	11.02	23.972			
2,600.0	2,572.3	2,601.5	2,599.1	7.7	5.8	168.62	44.8	31.0	278.4	266.9	11.55	24.114			
2,700.0	2,669.6	2,700.3	2,696.6	8.1	6.0	167.10	59.6	26.4	292.0	279.9	12.08	24.173			
2,800.0	2,766.8	2,799.1	2,794.2	8.6	6.3	165.71	74.3	21.9	305.8	293.1	12.63	24.208			
2,900.0	2,864.0	2,897.9	2,891.8	9.1	6.6	164.44	89.1	17.4	319.7	306.5	13.20	24.225			
3,000.0	2,961.3	2,996.7	2,989.3	9.6	6.9	163.28	103.9	12.8	333.7	320.0	13.78	24.225			
3,100.0	3,058.5	3,095.5	3,086.9	10.0	7.2	162.21	118.6	8.3	347.9	333.6	14.37	24.213			
3,200.0	3,155.7	3,194.3	3,184.5	10.5	7.5	161.22	133.4	3.8	362.2	347.2	14.97	24.190			
3,300.0	3,253.0	3,293.1	3,282.1	11.0	7.8	160.31	148.2	-0.8	376.6	361.0	15.59	24.158			
3,400.0	3,350.2	3,391.8	3,379.6	11.5	8.1	159.47	162.9	-5.3	391.1	374.9	16.21	24.119			
3,500.0	3,447.4	3,490.6	3,477.2	12.0	8.4	158.68	177.7	-9.8	405.6	388.8	16.85	24.075			
3,600.0	3,544.7	3,589.4	3,574.8	12.5	8.7	157.95	192.4	-14.4	420.3	402.8	17.49	24.027			
3,700.0	3,641.9	3,688.2	3,672.4	13.0	9.0	157.27	207.2	-18.9	434.9	416.8	18.14	23.976			
3,800.0	3,739.1	3,787.0	3,769.9	13.5	9.3	156.64	222.0	-23.4	449.7	430.9	18.80	23.923			
3,900.0	3,836.4	3,885.8	3,867.5	14.0	9.7	156.04	236.7	-28.0	464.5	445.0	19.46	23.869			
4,000.0	3,933.6	3,984.6	3,965.1	14.5	10.0	155.48	251.5	-32.5	479.3	459.2	20.13	23.814			
4,100.0	4,030.8	4,083.4	4,062.7	14.9	10.3	154.96	266.3	-37.0	494.2	473.4	20.80	23.759			
4,200.0	4,128.1	4,182.1	4,160.2	15.4	10.7	154.46	281.0	-41.6	509.1	487.6	21.48	23.704			
4,300.0	4,225.3	4,280.9	4,257.8	15.9	11.0	154.00	295.8	-46.1	524.1	501.9	22.16	23.649			
4,400.0	4,322.5	4,379.7	4,355.4	16.4	11.3	153.56	310.5	-50.6	539.0	516.2	22.85	23.595			
4,500.0	4,419.8	4,478.5	4,453.0	16.9	11.7	153.14	325.3	-55.2	554.1	530.5	23.53	23.542			
4,600.0	4,517.0	4,577.3	4,550.5	17.4	12.0	152.74	340.1	-59.7	569.1	544.9	24.23	23.490			
4,700.0	4,614.3	4,676.1	4,648.1	17.9	12.3	152.37	354.8	-64.3	584.2	559.2	24.92	23.439			
4,800.0	4,711.5	4,774.9	4,745.7	18.4	12.7	152.01	369.6	-68.8	599.3	573.6	25.62	23.389			
4,900.0	4,808.7	4,873.7	4,843.2	18.9	13.0	151.67	384.4	-73.3	614.4	588.0	26.32	23.341			
5,000.0	4,906.0	4,972.5	4,940.8	19.4	13.4	151.35	399.1	-77.9	629.5	602.5	27.03	23.293			

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-203 - Wellbore #1 - Plan #1 (3-14-16)													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
5,100.0	5,003.2	5,071.2	5,038.4	19.9	13.7	151.05	413.9	-82.4	644.7	616.9	27.73	23.247			
5,200.0	5,100.4	5,170.0	5,136.0	20.4	14.1	150.75	428.6	-86.9	659.8	631.4	28.44	23.202			
5,300.0	5,197.8	5,268.9	5,233.6	20.9	14.4	150.54	443.4	-91.5	674.3	645.1	29.17	23.116			
5,400.0	5,296.0	5,368.1	5,331.6	21.2	14.8	150.21	458.2	-96.0	685.9	656.1	29.87	22.961			
5,500.0	5,394.7	5,467.5	5,429.7	21.5	15.1	149.73	473.1	-100.6	694.6	664.1	30.56	22.726			
5,600.0	5,493.9	5,560.8	5,522.1	21.7	15.4	149.22	486.0	-104.5	700.8	669.6	31.14	22.505			
5,700.0	5,593.5	5,653.5	5,614.2	22.0	15.6	148.81	495.9	-107.6	705.0	673.4	31.62	22.297			
5,800.0	5,693.3	5,746.4	5,706.8	22.1	15.8	148.47	503.0	-109.8	707.2	675.2	32.02	22.089			
5,900.0	5,793.3	5,839.6	5,799.9	22.2	16.0	148.20	507.3	-111.1	707.5	675.2	32.33	21.881			
6,000.0	5,893.3	5,933.0	5,893.3	22.4	16.1	89.87	508.6	-111.5	707.1	674.4	32.65	21.656			
6,100.0	5,993.3	6,033.1	5,993.3	22.5	16.2	-90.05	507.0	-111.5	707.1	674.1	32.93	21.473			
6,121.7	6,015.0	6,054.8	6,015.0	22.5	16.3	-90.00	505.2	-111.5	707.1	674.1	32.95	21.459			
6,200.0	6,092.7	6,133.0	6,092.3	22.5	16.3	-89.83	493.9	-111.5	707.1	674.1	32.98	21.442			
6,300.0	6,189.8	6,232.5	6,188.3	22.5	16.2	-89.63	468.1	-111.5	707.1	674.3	32.82	21.543			
6,400.0	6,283.1	6,331.7	6,279.9	22.4	16.1	-89.42	430.2	-111.5	707.1	674.6	32.51	21.748			
6,500.0	6,370.9	6,430.6	6,365.6	22.2	15.9	-89.23	380.9	-111.5	707.1	675.0	32.11	22.020			
6,600.0	6,451.7	6,529.2	6,444.0	22.0	15.7	-89.05	321.2	-111.5	707.2	675.5	31.70	22.308			
6,700.0	6,524.1	6,627.5	6,513.8	21.8	15.5	-88.89	252.1	-111.5	707.2	675.8	31.36	22.549			
6,800.0	6,586.9	6,725.7	6,574.1	21.6	15.4	-88.74	174.7	-111.5	707.2	676.0	31.20	22.669			
6,900.0	6,639.1	6,823.6	6,623.9	21.4	15.4	-88.62	90.5	-111.5	707.3	676.0	31.29	22.604			
7,000.0	6,679.6	6,921.3	6,662.5	21.3	15.5	-88.52	0.8	-111.5	707.3	675.6	31.70	22.309			
7,100.0	6,707.9	7,018.9	6,689.2	21.2	15.9	-88.45	-93.0	-111.5	707.3	674.8	32.48	21.776			
7,200.0	6,723.5	7,116.4	6,703.8	21.2	16.5	-88.40	-189.4	-111.5	707.3	673.7	33.62	21.038			
7,300.0	6,726.4	7,214.6	6,706.5	21.5	17.3	-88.38	-287.4	-111.5	707.3	672.2	35.11	20.145			
7,400.0	6,725.7	7,314.6	6,705.8	21.9	18.2	-88.39	-387.4	-111.5	707.3	670.4	36.94	19.146			
7,500.0	6,725.0	7,414.6	6,705.2	22.6	19.3	-88.39	-487.4	-111.5	707.3	668.3	39.07	18.105			
7,600.0	6,724.3	7,514.6	6,704.6	23.6	20.5	-88.40	-587.4	-111.5	707.3	665.9	41.44	17.069			
7,700.0	6,723.6	7,614.6	6,703.9	24.7	21.9	-88.40	-687.4	-111.5	707.3	663.3	44.02	16.068			
7,800.0	6,722.9	7,714.6	6,703.3	25.9	23.3	-88.41	-787.4	-111.5	707.3	660.6	46.77	15.123			
7,900.0	6,722.3	7,814.6	6,702.7	27.2	24.7	-88.42	-887.4	-111.5	707.3	657.7	49.67	14.241			
8,000.0	6,721.6	7,914.6	6,702.1	28.6	26.3	-88.42	-987.4	-111.5	707.3	654.6	52.69	13.425			
8,100.0	6,720.9	8,014.6	6,701.4	30.1	27.8	-88.43	-1,087.4	-111.5	707.3	651.5	55.81	12.675			
8,200.0	6,720.2	8,114.6	6,700.8	31.6	29.5	-88.43	-1,187.4	-111.5	707.3	648.3	59.01	11.987			
8,300.0	6,719.5	8,214.6	6,700.2	33.1	31.1	-88.44	-1,287.4	-111.5	707.3	645.0	62.28	11.356			
8,400.0	6,718.8	8,314.6	6,699.5	34.7	32.8	-88.44	-1,387.4	-111.5	707.3	641.7	65.62	10.779			
8,500.0	6,718.1	8,414.6	6,698.9	36.3	34.5	-88.45	-1,487.4	-111.5	707.3	638.3	69.01	10.250			
8,600.0	6,717.4	8,514.6	6,698.3	38.0	36.2	-88.45	-1,587.4	-111.5	707.3	634.9	72.44	9.764			
8,700.0	6,716.7	8,614.6	6,697.7	39.7	38.0	-88.46	-1,687.4	-111.5	707.3	631.4	75.92	9.317			
8,800.0	6,716.0	8,714.6	6,697.0	41.4	39.7	-88.47	-1,787.4	-111.5	707.3	627.9	79.42	8.906			
8,900.0	6,715.3	8,814.6	6,696.4	43.1	41.5	-88.47	-1,887.4	-111.5	707.3	624.4	82.96	8.526			
9,000.0	6,714.6	8,914.6	6,695.8	44.8	43.3	-88.48	-1,987.4	-111.5	707.3	620.8	86.52	8.175			
9,100.0	6,713.9	9,014.6	6,695.2	46.5	45.1	-88.48	-2,087.4	-111.5	707.3	617.2	90.10	7.850			
9,200.0	6,713.2	9,114.6	6,694.5	48.3	46.9	-88.49	-2,187.4	-111.5	707.3	613.6	93.71	7.548			
9,300.0	6,712.5	9,214.6	6,693.9	50.1	48.7	-88.49	-2,287.4	-111.5	707.3	610.0	97.33	7.267			
9,400.0	6,711.8	9,314.6	6,693.3	51.8	50.5	-88.50	-2,387.4	-111.5	707.3	606.3	100.97	7.005			
9,500.0	6,711.1	9,414.6	6,692.6	53.6	52.4	-88.51	-2,487.4	-111.5	707.3	602.7	104.62	6.761			
9,600.0	6,710.4	9,514.6	6,692.0	55.4	54.2	-88.51	-2,587.4	-111.5	707.3	599.0	108.29	6.532			
9,700.0	6,709.7	9,614.6	6,691.4	57.2	56.0	-88.52	-2,687.4	-111.5	707.3	595.3	111.97	6.317			
9,800.0	6,709.0	9,714.6	6,690.8	59.0	57.9	-88.52	-2,787.4	-111.5	707.3	591.6	115.65	6.116			
9,900.0	6,708.3	9,814.6	6,690.1	60.8	59.7	-88.53	-2,887.4	-111.5	707.3	587.9	119.35	5.926			

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-203 - Wellbore #1 - Plan #1 (3-14-16)											Offset Site Error:		0.0 ft
Survey Program:		0-MWD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
10,000.0	6,707.6	9,914.6	6,689.5	62.7	61.6	-88.53	-2,987.4	-111.5	707.3	584.2	123.06	5.748			
10,100.0	6,706.9	10,014.6	6,688.9	64.5	63.5	-88.54	-3,087.4	-111.5	707.3	580.5	126.77	5.579			
10,200.0	6,706.2	10,114.6	6,688.2	66.3	65.3	-88.55	-3,187.4	-111.5	707.3	576.8	130.49	5.420			
10,300.0	6,705.5	10,214.6	6,687.6	68.2	67.2	-88.55	-3,287.4	-111.5	707.3	573.1	134.22	5.270			
10,400.0	6,704.8	10,314.6	6,687.0	70.0	69.1	-88.56	-3,387.4	-111.5	707.3	569.3	137.95	5.127			
10,500.0	6,704.1	10,414.6	6,686.4	71.8	70.9	-88.56	-3,487.4	-111.5	707.3	565.6	141.69	4.992			
10,600.0	6,703.4	10,514.6	6,685.7	73.7	72.8	-88.57	-3,587.4	-111.5	707.3	561.8	145.44	4.863			
10,700.0	6,702.7	10,614.6	6,685.1	75.5	74.7	-88.57	-3,687.4	-111.5	707.3	558.1	149.19	4.741			
10,800.0	6,702.0	10,714.6	6,684.5	77.4	76.6	-88.58	-3,787.4	-111.5	707.3	554.3	152.94	4.624			
10,900.0	6,701.3	10,814.6	6,683.8	79.3	78.4	-88.58	-3,887.4	-111.5	707.3	550.6	156.70	4.514			
11,000.0	6,700.6	10,914.6	6,683.2	81.1	80.3	-88.59	-3,987.4	-111.5	707.3	546.8	160.46	4.408			
11,100.0	6,699.9	11,014.6	6,682.6	83.0	82.2	-88.60	-4,087.4	-111.5	707.3	543.0	164.23	4.307			
11,200.0	6,699.2	11,114.6	6,682.0	84.8	84.1	-88.60	-4,187.4	-111.5	707.3	539.3	168.00	4.210			
11,300.0	6,698.5	11,214.6	6,681.3	86.7	86.0	-88.61	-4,287.4	-111.5	707.3	535.5	171.77	4.118			
11,400.0	6,697.8	11,314.6	6,680.7	88.6	87.9	-88.61	-4,387.4	-111.5	707.3	531.7	175.55	4.029			
11,500.0	6,697.1	11,414.6	6,680.1	90.5	89.8	-88.62	-4,487.4	-111.5	707.3	527.9	179.32	3.944			
11,600.0	6,696.4	11,514.6	6,679.4	92.3	91.7	-88.62	-4,587.4	-111.5	707.3	524.2	183.10	3.863			
11,700.0	6,695.7	11,614.6	6,678.8	94.2	93.5	-88.63	-4,687.4	-111.5	707.3	520.4	186.89	3.784			
11,800.0	6,695.0	11,714.6	6,678.2	96.1	95.4	-88.64	-4,787.4	-111.5	707.3	516.6	190.67	3.709			
11,900.0	6,694.3	11,814.6	6,677.6	98.0	97.3	-88.64	-4,887.4	-111.5	707.3	512.8	194.46	3.637			
12,000.0	6,693.6	11,914.6	6,676.9	99.8	99.2	-88.65	-4,987.4	-111.5	707.3	509.0	198.25	3.568			
12,100.0	6,692.9	12,014.6	6,676.3	101.7	101.1	-88.65	-5,087.3	-111.5	707.3	505.2	202.04	3.501			
12,200.0	6,692.2	12,114.6	6,675.7	103.6	103.0	-88.66	-5,187.3	-111.5	707.3	501.4	205.83	3.436			
12,300.0	6,691.5	12,214.6	6,675.0	105.5	104.9	-88.66	-5,287.3	-111.5	707.3	497.6	209.63	3.374			
12,400.0	6,690.8	12,314.6	6,674.4	107.4	106.8	-88.67	-5,387.3	-111.5	707.3	493.8	213.42	3.314			
12,500.0	6,690.1	12,414.6	6,673.8	109.3	108.7	-88.68	-5,487.3	-111.5	707.3	490.0	217.22	3.256			
12,600.0	6,689.4	12,514.6	6,673.2	111.2	110.6	-88.68	-5,587.3	-111.5	707.3	486.2	221.02	3.200			
12,700.0	6,688.7	12,614.6	6,672.5	113.1	112.5	-88.69	-5,687.3	-111.5	707.3	482.4	224.82	3.146			
12,800.0	6,688.0	12,714.6	6,671.9	114.9	114.4	-88.69	-5,787.3	-111.5	707.3	478.6	228.62	3.094			
12,900.0	6,687.3	12,814.6	6,671.3	116.8	116.3	-88.70	-5,887.3	-111.5	707.3	474.8	232.43	3.043			
13,000.0	6,686.6	12,914.6	6,670.6	118.7	118.2	-88.70	-5,987.3	-111.5	707.3	471.0	236.23	2.994			
13,100.0	6,685.9	13,014.6	6,670.0	120.6	120.1	-88.71	-6,087.3	-111.5	707.2	467.2	240.04	2.946			
13,200.0	6,685.3	13,114.6	6,669.4	122.5	122.0	-88.71	-6,187.3	-111.5	707.2	463.4	243.84	2.900			
13,300.0	6,684.6	13,214.6	6,668.8	124.4	123.9	-88.72	-6,287.3	-111.5	707.2	459.6	247.65	2.856			
13,400.0	6,683.9	13,314.6	6,668.1	126.3	125.8	-88.73	-6,387.3	-111.5	707.2	455.8	251.46	2.813			
13,500.0	6,683.2	13,414.6	6,667.5	128.2	127.8	-88.73	-6,487.3	-111.5	707.2	452.0	255.27	2.771			
13,600.0	6,682.5	13,514.6	6,666.9	130.1	129.7	-88.74	-6,587.3	-111.5	707.2	448.2	259.08	2.730			
13,700.0	6,681.8	13,614.6	6,666.2	132.0	131.6	-88.74	-6,687.3	-111.5	707.2	444.3	262.89	2.690			
13,800.0	6,681.1	13,714.6	6,665.6	133.9	133.5	-88.75	-6,787.3	-111.5	707.2	440.5	266.70	2.652			
13,900.0	6,680.4	13,814.6	6,665.0	135.8	135.4	-88.75	-6,887.3	-111.5	707.2	436.7	270.52	2.614			
14,000.0	6,679.7	13,914.6	6,664.4	137.7	137.3	-88.76	-6,987.3	-111.5	707.2	432.9	274.33	2.578			
14,100.0	6,679.0	14,014.6	6,663.7	139.6	139.2	-88.77	-7,087.3	-111.5	707.2	429.1	278.14	2.543			
14,200.0	6,678.3	14,114.6	6,663.1	141.5	141.1	-88.77	-7,187.3	-111.5	707.2	425.3	281.96	2.508			
14,300.0	6,677.6	14,214.6	6,662.5	143.4	143.0	-88.78	-7,287.3	-111.5	707.2	421.5	285.78	2.475			
14,357.6	6,677.2	14,272.2	6,662.1	144.5	144.1	-88.78	-7,344.9	-111.5	707.2	419.3	287.97	2.456			
14,381.8	6,677.0	14,290.7	6,662.0	144.9	144.5	-88.78	-7,363.4	-111.5	707.3	418.5	288.79	2.449 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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #1 (3-15-16)													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
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	29.9	0.22	133.877			
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	30.1	30.1	29.4	0.67	44.626			
300.0	300.0	300.0	300.0	0.6	0.6	90.01	0.0	30.1	30.1	29.0	1.12	26.775			
400.0	400.0	400.0	400.0	0.8	0.8	90.01	0.0	30.1	30.1	28.5	1.57	19.125			
500.0	500.0	500.0	500.0	1.0	1.0	90.01	0.0	30.1	30.1	28.1	2.02	14.875			
600.0	600.0	600.0	600.0	1.2	1.2	90.01	0.0	30.1	30.1	27.6	2.47	12.171			
700.0	700.0	700.0	700.0	1.5	1.5	90.01	0.0	30.1	30.1	27.2	2.92	10.298			
800.0	800.0	800.0	800.0	1.7	1.7	90.01	0.0	30.1	30.1	26.7	3.37	8.925			
900.0	900.0	900.0	900.0	1.9	1.9	90.01	0.0	30.1	30.1	26.3	3.82	7.875			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.01	0.0	30.1	30.1	25.8	4.27	7.046 CC, ES			
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	149.49	0.0	30.1	31.2	26.5	4.71	6.622			
1,200.0	1,199.9	1,199.9	1,199.9	2.6	2.6	152.76	0.0	30.1	34.7	29.5	5.15	6.727			
1,300.0	1,299.7	1,299.7	1,299.7	2.8	2.8	156.96	0.0	30.1	40.6	35.0	5.59	7.261			
1,400.0	1,399.3	1,399.3	1,399.3	3.0	3.0	161.09	0.0	30.1	49.1	43.1	6.03	8.154			
1,500.0	1,498.6	1,499.8	1,499.8	3.3	3.3	163.95	1.0	29.3	59.3	52.9	6.46	9.190			
1,600.0	1,597.5	1,600.6	1,600.5	3.6	3.5	165.22	4.2	26.9	70.1	63.2	6.89	10.174			
1,700.0	1,696.1	1,701.6	1,701.3	3.9	3.7	165.50	9.5	23.0	81.2	73.9	7.32	11.096			
1,800.0	1,794.2	1,802.8	1,802.0	4.2	3.9	165.15	17.0	17.4	92.7	85.0	7.75	11.957			
1,900.0	1,891.7	1,904.2	1,902.7	4.6	4.2	164.36	26.6	10.2	104.6	96.4	8.20	12.757			
2,000.0	1,988.9	2,005.9	2,003.3	5.0	4.5	163.14	38.4	1.4	115.7	107.0	8.70	13.307			
2,100.0	2,086.2	2,105.7	2,101.9	5.4	4.7	161.66	51.4	-8.3	125.5	116.3	9.21	13.623			
2,200.0	2,183.4	2,205.2	2,200.0	5.8	5.0	160.39	64.3	-18.0	135.3	125.6	9.75	13.885			
2,300.0	2,280.6	2,304.7	2,298.2	6.3	5.3	159.28	77.2	-27.6	145.2	134.9	10.30	14.101			
2,400.0	2,377.9	2,404.2	2,396.4	6.7	5.6	158.32	90.2	-37.3	155.2	144.3	10.87	14.281			
2,500.0	2,475.1	2,503.6	2,494.5	7.2	6.0	157.48	103.1	-47.0	165.1	153.7	11.45	14.429			
2,600.0	2,572.3	2,603.1	2,592.7	7.7	6.3	156.73	116.1	-56.6	175.2	163.1	12.04	14.552			
2,700.0	2,669.6	2,702.6	2,690.8	8.1	6.6	156.06	129.0	-66.3	185.2	172.6	12.64	14.654			
2,800.0	2,766.8	2,802.1	2,789.0	8.6	7.0	155.47	141.9	-76.0	195.2	182.0	13.25	14.738			
2,900.0	2,864.0	2,901.5	2,887.1	9.1	7.3	154.93	154.9	-85.6	205.3	191.5	13.87	14.807			
3,000.0	2,961.3	3,001.0	2,985.3	9.6	7.6	154.44	167.8	-95.3	215.4	200.9	14.49	14.864			
3,100.0	3,058.5	3,100.5	3,083.4	10.0	8.0	153.99	180.8	-105.0	225.5	210.4	15.12	14.912			
3,200.0	3,155.7	3,200.0	3,181.6	10.5	8.3	153.58	193.7	-114.6	235.6	219.9	15.76	14.950			
3,300.0	3,253.0	3,299.4	3,279.7	11.0	8.7	153.21	206.6	-124.3	245.8	229.4	16.40	14.982			
3,400.0	3,350.2	3,398.9	3,377.9	11.5	9.0	152.86	219.6	-134.0	255.9	238.9	17.05	15.008			
3,500.0	3,447.4	3,498.4	3,476.0	12.0	9.4	152.55	232.5	-143.7	266.1	248.4	17.70	15.029			
3,600.0	3,544.7	3,597.9	3,574.2	12.5	9.7	152.25	245.4	-153.3	276.2	257.9	18.36	15.046			
3,700.0	3,641.9	3,697.3	3,672.3	13.0	10.1	151.98	258.4	-163.0	286.4	267.4	19.02	15.060			
3,800.0	3,739.1	3,796.8	3,770.5	13.5	10.5	151.72	271.3	-172.7	296.5	276.9	19.68	15.071			
3,900.0	3,836.4	3,896.3	3,868.7	14.0	10.8	151.49	284.3	-182.3	306.7	286.4	20.34	15.079			
4,000.0	3,933.6	3,995.7	3,966.8	14.5	11.2	151.26	297.2	-192.0	316.9	295.9	21.01	15.085			
4,100.0	4,030.8	4,095.2	4,065.0	14.9	11.5	151.05	310.1	-201.7	327.1	305.4	21.68	15.089			
4,200.0	4,128.1	4,194.7	4,163.1	15.4	11.9	150.86	323.1	-211.3	337.3	314.9	22.35	15.092			
4,300.0	4,225.3	4,294.2	4,261.3	15.9	12.3	150.67	336.0	-221.0	347.4	324.4	23.02	15.094			
4,400.0	4,322.5	4,393.6	4,359.4	16.4	12.6	150.50	349.0	-230.7	357.6	333.9	23.69	15.094			
4,500.0	4,419.8	4,493.1	4,457.6	16.9	13.0	150.33	361.9	-240.3	367.8	343.5	24.37	15.094			
4,600.0	4,517.0	4,592.6	4,555.7	17.4	13.4	150.18	374.8	-250.0	378.0	353.0	25.05	15.093			
4,700.0	4,614.3	4,692.1	4,653.9	17.9	13.7	150.03	387.8	-259.7	388.2	362.5	25.73	15.091			
4,800.0	4,711.5	4,791.5	4,752.0	18.4	14.1	149.89	400.7	-269.3	398.4	372.0	26.41	15.088			
4,900.0	4,808.7	4,891.0	4,850.2	18.9	14.5	149.76	413.7	-279.0	408.6	381.6	27.09	15.086			
5,000.0	4,906.0	4,990.5	4,948.3	19.4	14.8	149.63	426.6	-288.7	418.9	391.1	27.77	15.082			

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #1 (3-15-16)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,100.0	5,003.2	5,090.0	5,046.5	19.9	15.2	149.51	439.5	-298.3	429.1	400.6	28.45	15.079		
5,200.0	5,100.4	5,189.4	5,144.6	20.4	15.6	149.40	452.5	-308.0	439.3	410.1	29.14	15.075		
5,300.0	5,197.8	5,289.0	5,242.9	20.9	15.9	149.30	465.4	-317.7	448.8	418.9	29.84	15.039		
5,400.0	5,296.0	5,388.1	5,340.7	21.2	16.3	149.00	478.3	-327.3	455.5	424.9	30.53	14.921		
5,500.0	5,394.7	5,479.1	5,430.7	21.5	16.6	148.67	488.8	-335.2	460.3	429.2	31.08	14.807		
5,600.0	5,493.9	5,570.1	5,521.1	21.7	16.8	148.43	497.1	-341.4	464.1	432.5	31.56	14.703		
5,700.0	5,593.5	5,661.1	5,611.9	22.0	17.0	148.25	503.0	-345.8	466.8	434.8	31.96	14.604		
5,800.0	5,693.3	5,752.2	5,702.8	22.1	17.1	148.14	506.7	-348.5	468.4	436.2	32.28	14.512		
5,900.0	5,793.3	5,843.3	5,793.9	22.2	17.3	148.11	508.0	-349.5	469.0	436.5	32.52	14.422		
6,000.0	5,893.3	5,942.7	5,893.3	22.4	17.4	89.88	508.0	-349.5	469.1	436.2	32.83	14.286		
6,050.1	5,943.4	5,992.8	5,943.4	22.4	17.5	-90.18	508.0	-349.5	469.1	436.0	33.01	14.210		
6,100.0	5,993.3	6,042.7	5,993.3	22.5	17.6	-90.20	508.0	-349.5	469.1	435.9	33.17	14.139		
6,200.0	6,092.7	6,143.0	6,093.5	22.5	17.7	-91.08	504.7	-349.5	469.1	435.6	33.53	13.992		
6,300.0	6,189.8	6,244.4	6,193.6	22.5	17.7	-92.03	488.7	-349.5	469.3	435.7	33.66	13.944		
6,400.0	6,283.1	6,346.9	6,291.6	22.4	17.6	-92.94	459.2	-349.5	469.7	436.1	33.57	13.989		
6,500.0	6,370.9	6,450.4	6,385.7	22.2	17.5	-93.80	416.3	-349.5	470.1	436.8	33.31	14.114		
6,600.0	6,451.7	6,554.9	6,474.0	22.0	17.3	-94.60	360.5	-349.5	470.6	437.6	32.93	14.292		
6,700.0	6,524.1	6,660.4	6,554.6	21.8	17.0	-95.32	292.6	-349.5	471.1	438.6	32.53	14.483		
6,800.0	6,586.9	6,766.7	6,625.5	21.6	16.8	-95.95	213.5	-349.5	471.6	439.4	32.23	14.633		
6,900.0	6,639.1	6,873.8	6,685.2	21.4	16.6	-96.47	124.7	-349.5	472.1	439.9	32.15	14.682		
7,000.0	6,679.6	6,981.4	6,732.1	21.3	16.4	-96.87	27.9	-349.5	472.4	440.0	32.42	14.572		
7,100.0	6,707.9	7,089.6	6,765.0	21.2	16.2	-97.14	-75.0	-349.5	472.7	439.6	33.12	14.273		
7,200.0	6,723.5	7,198.0	6,783.2	21.2	16.7	-97.29	-181.8	-349.5	472.9	438.6	34.28	13.796		
7,300.0	6,726.4	7,304.1	6,786.6	21.5	17.7	-97.31	-287.8	-349.5	472.9	437.1	35.84	13.196		
7,400.0	6,725.7	7,404.1	6,786.2	21.9	18.7	-97.35	-387.8	-349.5	472.9	435.3	37.66	12.559		
7,500.0	6,725.0	7,504.1	6,785.8	22.6	19.8	-97.38	-487.8	-349.5	473.0	433.2	39.76	11.896		
7,600.0	6,724.3	7,604.1	6,785.4	23.6	21.0	-97.42	-587.8	-349.5	473.0	430.9	42.10	11.235		
7,700.0	6,723.6	7,704.1	6,785.0	24.7	22.3	-97.45	-687.8	-349.5	473.0	428.4	44.65	10.595		
7,800.0	6,722.9	7,804.1	6,784.6	25.9	23.7	-97.48	-787.8	-349.5	473.1	425.7	47.36	9.988		
7,900.0	6,722.3	7,904.1	6,784.1	27.2	25.2	-97.52	-887.8	-349.5	473.1	422.9	50.22	9.421		
8,000.0	6,721.6	8,004.1	6,783.7	28.6	26.7	-97.55	-987.8	-349.5	473.2	420.0	53.20	8.894		
8,100.0	6,720.9	8,104.1	6,783.3	30.1	28.2	-97.58	-1,087.8	-349.5	473.2	416.9	56.28	8.408		
8,200.0	6,720.2	8,204.1	6,782.9	31.6	29.8	-97.62	-1,187.8	-349.5	473.2	413.8	59.44	7.962		
8,300.0	6,719.5	8,304.1	6,782.5	33.1	31.5	-97.65	-1,287.8	-349.5	473.3	410.6	62.67	7.551		
8,400.0	6,718.8	8,404.1	6,782.0	34.7	33.1	-97.68	-1,387.8	-349.5	473.3	407.3	65.97	7.175		
8,500.0	6,718.1	8,504.1	6,781.6	36.3	34.8	-97.72	-1,487.8	-349.5	473.3	404.0	69.31	6.829		
8,600.0	6,717.4	8,604.1	6,781.2	38.0	36.5	-97.75	-1,587.8	-349.5	473.4	400.7	72.71	6.511		
8,700.0	6,716.7	8,704.1	6,780.8	39.7	38.3	-97.78	-1,687.8	-349.5	473.4	397.3	76.14	6.218		
8,800.0	6,716.0	8,804.1	6,780.4	41.4	40.0	-97.82	-1,787.8	-349.5	473.5	393.9	79.60	5.948		
8,900.0	6,715.3	8,904.1	6,779.9	43.1	41.8	-97.85	-1,887.8	-349.5	473.5	390.4	83.09	5.698		
9,000.0	6,714.6	9,004.1	6,779.5	44.8	43.6	-97.88	-1,987.8	-349.5	473.5	386.9	86.61	5.467		
9,100.0	6,713.9	9,104.1	6,779.1	46.5	45.3	-97.92	-2,087.8	-349.5	473.6	383.4	90.16	5.253		
9,200.0	6,713.2	9,204.1	6,778.7	48.3	47.1	-97.95	-2,187.8	-349.5	473.6	379.9	93.72	5.054		
9,300.0	6,712.5	9,304.1	6,778.3	50.1	48.9	-97.98	-2,287.8	-349.5	473.6	376.3	97.30	4.868		
9,400.0	6,711.8	9,404.1	6,777.9	51.8	50.8	-98.02	-2,387.8	-349.5	473.7	372.8	100.89	4.695		
9,500.0	6,711.1	9,504.1	6,777.4	53.6	52.6	-98.05	-2,487.8	-349.5	473.7	369.2	104.50	4.533		
9,600.0	6,710.4	9,604.1	6,777.0	55.4	54.4	-98.08	-2,587.8	-349.5	473.8	365.6	108.13	4.382		
9,700.0	6,709.7	9,704.1	6,776.6	57.2	56.2	-98.12	-2,687.8	-349.5	473.8	362.0	111.76	4.239		
9,800.0	6,709.0	9,804.1	6,776.2	59.0	58.1	-98.15	-2,787.8	-349.5	473.8	358.4	115.41	4.106		
9,900.0	6,708.3	9,904.1	6,775.8	60.8	59.9	-98.19	-2,887.8	-349.5	473.9	354.8	119.06	3.980		

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-303 - Wellbore #1 - Plan #1 (3-15-16)											Offset Site Error:		0.0 ft
Survey Program:		0-MWD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
10,000.0	6,707.6	10,004.1	6,775.3	62.7	61.8	-98.22	-2,987.8	-349.5	473.9	351.2	122.72	3.862			
10,100.0	6,706.9	10,104.1	6,774.9	64.5	63.6	-98.25	-3,087.8	-349.5	474.0	347.6	126.39	3.750			
10,200.0	6,706.2	10,204.1	6,774.5	66.3	65.5	-98.29	-3,187.8	-349.5	474.0	343.9	130.07	3.644			
10,300.0	6,705.5	10,304.1	6,774.1	68.2	67.3	-98.32	-3,287.8	-349.5	474.0	340.3	133.75	3.544			
10,400.0	6,704.8	10,404.1	6,773.7	70.0	69.2	-98.35	-3,387.8	-349.5	474.1	336.6	137.44	3.449			
10,500.0	6,704.1	10,504.1	6,773.2	71.8	71.1	-98.39	-3,487.8	-349.5	474.1	333.0	141.13	3.359			
10,600.0	6,703.4	10,604.1	6,772.8	73.7	72.9	-98.42	-3,587.8	-349.5	474.2	329.3	144.83	3.274			
10,700.0	6,702.7	10,704.1	6,772.4	75.5	74.8	-98.45	-3,687.8	-349.5	474.2	325.7	148.53	3.193			
10,800.0	6,702.0	10,804.1	6,772.0	77.4	76.7	-98.49	-3,787.8	-349.5	474.2	322.0	152.24	3.115			
10,900.0	6,701.3	10,904.1	6,771.6	79.3	78.6	-98.52	-3,887.8	-349.5	474.3	318.3	155.95	3.041			
11,000.0	6,700.6	11,004.1	6,771.1	81.1	80.4	-98.55	-3,987.8	-349.5	474.3	314.7	159.66	2.971			
11,100.0	6,699.9	11,104.1	6,770.7	83.0	82.3	-98.59	-4,087.8	-349.5	474.4	311.0	163.38	2.903			
11,200.0	6,699.2	11,204.1	6,770.3	84.8	84.2	-98.62	-4,187.8	-349.5	474.4	307.3	167.10	2.839			
11,300.0	6,698.5	11,304.1	6,769.9	86.7	86.1	-98.65	-4,287.8	-349.5	474.5	303.6	170.82	2.777			
11,400.0	6,697.8	11,404.1	6,769.5	88.6	88.0	-98.69	-4,387.8	-349.5	474.5	300.0	174.55	2.718			
11,500.0	6,697.1	11,504.1	6,769.1	90.5	89.9	-98.72	-4,487.8	-349.5	474.5	296.3	178.27	2.662			
11,600.0	6,696.4	11,604.1	6,768.6	92.3	91.7	-98.75	-4,587.8	-349.5	474.6	292.6	182.00	2.608			
11,700.0	6,695.7	11,704.1	6,768.2	94.2	93.6	-98.79	-4,687.8	-349.5	474.6	288.9	185.73	2.555			
11,800.0	6,695.0	11,804.1	6,767.8	96.1	95.5	-98.82	-4,787.8	-349.5	474.7	285.2	189.46	2.505			
11,900.0	6,694.3	11,904.1	6,767.4	98.0	97.4	-98.85	-4,887.8	-349.5	474.7	281.5	193.20	2.457			
12,000.0	6,693.6	12,004.1	6,767.0	99.8	99.3	-98.89	-4,987.8	-349.5	474.8	277.8	196.93	2.411			
12,100.0	6,692.9	12,104.1	6,766.5	101.7	101.2	-98.92	-5,087.8	-349.5	474.8	274.1	200.67	2.366			
12,200.0	6,692.2	12,204.1	6,766.1	103.6	103.1	-98.95	-5,187.8	-349.5	474.8	270.4	204.41	2.323			
12,300.0	6,691.5	12,304.1	6,765.7	105.5	105.0	-98.99	-5,287.8	-349.5	474.9	266.7	208.15	2.281			
12,400.0	6,690.8	12,404.1	6,765.3	107.4	106.9	-99.02	-5,387.8	-349.5	474.9	263.0	211.89	2.241			
12,500.0	6,690.1	12,504.1	6,764.9	109.3	108.8	-99.05	-5,487.8	-349.5	475.0	259.3	215.63	2.203			
12,600.0	6,689.4	12,604.1	6,764.4	111.2	110.7	-99.09	-5,587.8	-349.5	475.0	255.6	219.37	2.165			
12,700.0	6,688.7	12,704.1	6,764.0	113.1	112.6	-99.12	-5,687.8	-349.5	475.1	251.9	223.11	2.129			
12,800.0	6,688.0	12,804.1	6,763.6	114.9	114.5	-99.15	-5,787.8	-349.5	475.1	248.2	226.86	2.094			
12,900.0	6,687.3	12,904.1	6,763.2	116.8	116.4	-99.19	-5,887.8	-349.5	475.1	244.6	230.60	2.060			
13,000.0	6,686.6	13,004.1	6,762.8	118.7	118.3	-99.22	-5,987.8	-349.5	475.2	240.9	234.34	2.028			
13,100.0	6,685.9	13,104.1	6,762.4	120.6	120.2	-99.25	-6,087.7	-349.5	475.2	237.2	238.09	1.996			
13,200.0	6,685.3	13,204.1	6,761.9	122.5	122.1	-99.28	-6,187.7	-349.5	475.3	233.5	241.83	1.965			
13,300.0	6,684.6	13,304.1	6,761.5	124.4	124.0	-99.32	-6,287.7	-349.5	475.3	229.7	245.58	1.936			
13,400.0	6,683.9	13,404.1	6,761.1	126.3	125.9	-99.35	-6,387.7	-349.5	475.4	226.0	249.33	1.907			
13,500.0	6,683.2	13,504.1	6,760.7	128.2	127.8	-99.38	-6,487.7	-349.5	475.4	222.3	253.07	1.879			
13,600.0	6,682.5	13,604.1	6,760.3	130.1	129.7	-99.42	-6,587.7	-349.5	475.5	218.6	256.82	1.851			
13,700.0	6,681.8	13,704.1	6,759.8	132.0	131.6	-99.45	-6,687.7	-349.5	475.5	214.9	260.57	1.825			
13,800.0	6,681.1	13,804.1	6,759.4	133.9	133.5	-99.48	-6,787.7	-349.5	475.6	211.2	264.31	1.799			
13,900.0	6,680.4	13,904.1	6,759.0	135.8	135.4	-99.52	-6,887.7	-349.5	475.6	207.5	268.06	1.774			
14,000.0	6,679.7	14,004.1	6,758.6	137.7	137.3	-99.55	-6,987.7	-349.5	475.7	203.8	271.81	1.750			
14,100.0	6,679.0	14,104.1	6,758.2	139.6	139.2	-99.58	-7,087.7	-349.5	475.7	200.1	275.55	1.726			
14,200.0	6,678.3	14,204.1	6,757.7	141.5	141.1	-99.62	-7,187.7	-349.5	475.7	196.4	279.30	1.703			
14,300.0	6,677.6	14,304.1	6,757.3	143.4	143.0	-99.65	-7,287.7	-349.5	475.8	192.7	283.05	1.681			
14,345.0	6,677.3	14,349.1	6,757.1	144.2	143.9	-99.66	-7,332.7	-349.5	475.8	191.1	284.73	1.671			
14,381.8	6,677.0	14,381.9	6,757.0	144.9	144.5	-99.68	-7,365.6	-349.5	475.8	189.8	286.04	1.664 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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-323 - Wellbore #1 - Plan #1 (3-15-16)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	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	0.22	333.469		
200.0	200.0	200.0	200.0	0.3	0.3	90.55	-0.7	74.9	75.0	74.3	0.67	111.156		
300.0	300.0	300.0	300.0	0.6	0.6	90.55	-0.7	74.9	75.0	73.8	1.12	66.694		
400.0	400.0	400.0	400.0	0.8	0.8	90.55	-0.7	74.9	75.0	73.4	1.57	47.638		
500.0	500.0	500.0	500.0	1.0	1.0	90.55	-0.7	74.9	75.0	72.9	2.02	37.052		
600.0	600.0	600.0	600.0	1.2	1.2	90.55	-0.7	74.9	75.0	72.5	2.47	30.315		
700.0	700.0	700.0	700.0	1.5	1.5	90.55	-0.7	74.9	75.0	72.0	2.92	25.651		
800.0	800.0	800.0	800.0	1.7	1.7	90.55	-0.7	74.9	75.0	71.6	3.37	22.231	CC, ES	
900.0	900.0	899.1	899.1	1.9	1.9	89.67	0.4	75.5	75.5	71.7	3.82	19.780		
1,000.0	1,000.0	998.2	998.1	2.1	2.1	87.10	3.9	77.2	77.3	73.0	4.26	18.130		
1,100.0	1,100.0	1,096.9	1,096.6	2.4	2.4	141.86	9.7	80.0	81.6	76.9	4.70	17.353	SF	
1,200.0	1,199.9	1,195.2	1,194.5	2.6	2.6	138.47	17.7	83.8	89.7	84.5	5.15	17.422		
1,300.0	1,299.7	1,293.0	1,291.6	2.8	2.8	135.50	27.9	88.8	101.4	95.8	5.60	18.107		
1,400.0	1,399.3	1,389.9	1,387.6	3.0	3.1	133.07	40.2	94.7	116.8	110.7	6.07	19.242		
1,500.0	1,498.6	1,485.9	1,482.3	3.3	3.4	131.18	54.6	101.6	135.7	129.1	6.56	20.692		
1,600.0	1,597.5	1,581.8	1,576.3	3.6	3.7	129.76	71.0	109.5	157.9	150.8	7.07	22.335		
1,700.0	1,696.1	1,678.8	1,671.5	3.9	4.0	129.12	88.0	117.7	182.2	174.6	7.61	23.946		
1,800.0	1,794.2	1,775.4	1,766.2	4.2	4.4	129.12	105.0	125.9	208.0	199.8	8.17	25.459		
1,900.0	1,891.7	1,871.5	1,860.5	4.6	4.7	129.54	121.9	134.1	235.5	226.7	8.76	26.887		
2,000.0	1,988.9	1,967.3	1,954.5	5.0	5.1	130.36	138.7	142.2	263.8	254.4	9.38	28.110		
2,100.0	2,086.2	2,063.2	2,048.5	5.4	5.5	131.02	155.5	150.3	292.2	282.1	10.03	29.135		
2,200.0	2,183.4	2,159.0	2,142.5	5.8	5.9	131.56	172.4	158.4	320.6	309.9	10.68	30.002		
2,300.0	2,280.6	2,254.8	2,236.5	6.3	6.2	132.02	189.2	166.6	349.0	337.6	11.35	30.740		
2,400.0	2,377.9	2,350.7	2,330.5	6.7	6.6	132.41	206.0	174.7	377.4	365.4	12.03	31.375		
2,500.0	2,475.1	2,446.5	2,424.5	7.2	7.0	132.74	222.9	182.8	405.8	393.1	12.71	31.924		
2,600.0	2,572.3	2,542.4	2,518.5	7.7	7.4	133.03	239.7	190.9	434.3	420.9	13.40	32.403		
2,700.0	2,669.6	2,638.2	2,612.5	8.1	7.8	133.29	256.6	199.1	462.8	448.7	14.10	32.823		
2,800.0	2,766.8	2,734.1	2,706.5	8.6	8.2	133.51	273.4	207.2	491.2	476.4	14.80	33.194		
2,900.0	2,864.0	2,829.9	2,800.5	9.1	8.6	133.71	290.2	215.3	519.7	504.2	15.50	33.523		
3,000.0	2,961.3	2,925.8	2,894.5	9.6	9.0	133.89	307.1	223.4	548.2	532.0	16.21	33.817		
3,100.0	3,058.5	3,021.6	2,988.5	10.0	9.4	134.05	323.9	231.5	576.7	559.8	16.92	34.081		
3,200.0	3,155.7	3,117.4	3,082.5	10.5	9.8	134.20	340.7	239.7	605.2	587.5	17.63	34.318		
3,300.0	3,253.0	3,213.3	3,176.5	11.0	10.1	134.33	357.6	247.8	633.7	615.3	18.35	34.533		
3,400.0	3,350.2	3,309.1	3,270.5	11.5	10.5	134.45	374.4	255.9	662.2	643.1	19.07	34.728		
3,500.0	3,447.4	3,405.0	3,364.5	12.0	10.9	134.57	391.3	264.0	690.7	670.9	19.79	34.906		
3,600.0	3,544.7	3,500.8	3,458.6	12.5	11.3	134.67	408.1	272.2	719.2	698.7	20.51	35.069		
3,700.0	3,641.9	3,596.7	3,552.6	13.0	11.7	134.76	424.9	280.3	747.7	726.4	21.23	35.218		
3,800.0	3,739.1	3,692.5	3,646.6	13.5	12.1	134.85	441.8	288.4	776.2	754.2	21.95	35.356		
3,900.0	3,836.4	3,788.4	3,740.6	14.0	12.5	134.93	458.6	296.5	804.7	782.0	22.68	35.483		
4,000.0	3,933.6	3,904.6	3,855.0	14.5	12.9	135.16	477.0	305.4	832.0	808.6	23.38	35.590		
4,100.0	4,030.8	4,022.3	3,971.6	14.9	13.2	135.63	491.3	312.3	857.0	833.0	24.03	35.658		
4,200.0	4,128.1	4,140.9	4,089.7	15.4	13.5	136.33	501.3	317.1	879.6	855.0	24.65	35.691		
4,300.0	4,225.3	4,259.9	4,208.5	15.9	13.7	137.26	507.0	319.9	899.9	874.7	25.21	35.703		
4,400.0	4,322.5	4,374.0	4,322.5	16.4	13.9	138.33	508.3	320.5	918.2	892.5	25.71	35.706		
4,500.0	4,419.8	4,471.2	4,419.8	16.9	14.0	139.27	508.3	320.5	936.0	909.8	26.20	35.723		
4,600.0	4,517.0	4,568.4	4,517.0	17.4	14.2	140.17	508.3	320.5	954.0	927.3	26.68	35.751		
4,700.0	4,614.3	4,665.7	4,614.3	17.9	14.3	141.04	508.3	320.5	972.2	945.1	27.16	35.793		
4,800.0	4,711.5	4,762.9	4,711.5	18.4	14.5	141.89	508.3	320.5	990.7	963.1	27.64	35.848		

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-423 - Wellbore #1 - Plan #1 (3-15-16)											Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
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	59.7	0.22	267.857		
200.0	200.0	199.0	199.0	0.3	0.3	90.35	-0.4	59.9	59.9	59.2	0.67	89.137		
300.0	300.0	299.0	299.0	0.6	0.6	90.35	-0.4	59.9	59.9	58.8	1.12	53.411		
400.0	400.0	399.0	399.0	0.8	0.8	90.35	-0.4	59.9	59.9	58.3	1.57	38.129		
500.0	500.0	499.0	499.0	1.0	1.0	90.35	-0.4	59.9	59.9	57.9	2.02	29.646		
600.0	600.0	599.0	599.0	1.2	1.2	90.35	-0.4	59.9	59.9	57.4	2.47	24.251		
700.0	700.0	699.0	699.0	1.5	1.5	90.35	-0.4	59.9	59.9	57.0	2.92	20.517		
800.0	800.0	799.0	799.0	1.7	1.7	90.35	-0.4	59.9	59.9	56.5	3.37	17.780		
900.0	900.0	899.0	899.0	1.9	1.9	90.35	-0.4	59.9	59.9	56.1	3.82	15.687		
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.35	-0.4	59.9	59.9	55.6	4.27	14.035	CC, ES	
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	149.21	-0.4	59.9	61.0	56.3	4.71	12.953		
1,200.0	1,199.9	1,198.9	1,198.9	2.6	2.6	150.97	-0.4	59.9	64.4	59.3	5.15	12.514		
1,300.0	1,299.7	1,298.7	1,298.7	2.8	2.8	153.52	-0.4	59.9	70.2	64.6	5.59	12.570		
1,400.0	1,399.3	1,398.3	1,398.3	3.0	3.0	156.45	-0.4	59.9	78.5	72.5	6.02	13.035		
1,500.0	1,498.6	1,497.6	1,497.6	3.3	3.3	159.40	-0.4	59.9	89.4	83.0	6.46	13.843		
1,600.0	1,597.5	1,596.5	1,596.5	3.6	3.5	162.14	-0.4	59.9	103.0	96.1	6.89	14.939		
1,700.0	1,696.1	1,695.1	1,695.1	3.9	3.7	164.57	-0.4	59.9	119.2	111.9	7.33	16.277		
1,800.0	1,794.2	1,793.2	1,793.2	4.2	3.9	166.65	-0.4	59.9	138.2	130.4	7.75	17.818		
1,900.0	1,891.7	1,890.7	1,890.7	4.6	4.1	168.41	-0.4	59.9	159.7	151.6	8.18	19.528		
2,000.0	1,988.9	1,987.9	1,987.9	5.0	4.4	169.88	-0.4	59.9	182.7	174.1	8.63	21.162		
2,100.0	2,086.2	2,085.2	2,085.2	5.4	4.6	171.03	-0.4	59.9	205.8	196.7	9.09	22.632		
2,200.0	2,183.4	2,182.4	2,182.4	5.8	4.8	171.94	-0.4	59.9	228.9	219.3	9.55	23.958		
2,300.0	2,280.6	2,279.6	2,279.6	6.3	5.0	172.68	-0.4	59.9	252.0	242.0	10.02	25.159		
2,400.0	2,377.9	2,376.9	2,376.9	6.7	5.2	173.30	-0.4	59.9	275.2	264.7	10.48	26.250		
2,500.0	2,475.1	2,474.1	2,474.1	7.2	5.4	173.82	-0.4	59.9	298.4	287.5	10.95	27.244		
2,600.0	2,572.3	2,573.6	2,573.6	7.7	5.7	174.16	0.3	60.0	321.4	310.0	11.43	28.122		
2,700.0	2,669.6	2,674.3	2,674.2	8.1	5.9	174.05	3.6	60.2	343.5	331.6	11.91	28.842		
2,800.0	2,766.8	2,775.3	2,775.1	8.6	6.1	173.55	9.5	60.7	364.7	352.3	12.40	29.420		
2,900.0	2,864.0	2,876.5	2,875.9	9.1	6.4	172.73	18.1	61.5	385.0	372.1	12.89	29.867		
3,000.0	2,961.3	2,977.8	2,976.5	9.6	6.6	171.62	29.4	62.4	404.6	391.2	13.40	30.194		
3,100.0	3,058.5	3,079.0	3,076.7	10.0	6.8	170.27	43.3	63.6	423.4	409.5	13.93	30.409		
3,200.0	3,155.7	3,179.3	3,175.8	10.5	7.1	168.72	59.6	65.0	441.8	427.3	14.47	30.525		
3,300.0	3,253.0	3,276.9	3,271.9	11.0	7.3	167.23	76.4	66.5	460.2	445.2	15.04	30.602		
3,400.0	3,350.2	3,374.5	3,368.0	11.5	7.6	165.86	93.1	67.9	478.9	463.3	15.62	30.657		
3,500.0	3,447.4	3,472.1	3,464.2	12.0	7.9	164.58	109.9	69.3	497.9	481.7	16.22	30.693		
3,600.0	3,544.7	3,569.7	3,560.3	12.5	8.2	163.40	126.7	70.8	517.1	500.2	16.84	30.713		
3,700.0	3,641.9	3,667.3	3,656.5	13.0	8.5	162.30	143.4	72.2	536.4	519.0	17.46	30.720		
3,800.0	3,739.1	3,764.9	3,752.6	13.5	8.8	161.28	160.2	73.6	556.0	537.9	18.10	30.715		
3,900.0	3,836.4	3,862.5	3,848.7	14.0	9.1	160.33	176.9	75.0	575.7	556.9	18.75	30.703		
4,000.0	3,933.6	3,960.1	3,944.9	14.5	9.4	159.44	193.7	76.5	595.6	576.1	19.41	30.683		
4,100.0	4,030.8	4,057.7	4,041.0	14.9	9.7	158.61	210.5	77.9	615.5	595.5	20.08	30.657		
4,200.0	4,128.1	4,155.3	4,137.2	15.4	10.0	157.83	227.2	79.3	635.6	614.9	20.75	30.628		
4,300.0	4,225.3	4,252.9	4,233.3	15.9	10.3	157.10	244.0	80.8	655.9	634.4	21.44	30.595		
4,400.0	4,322.5	4,350.5	4,329.4	16.4	10.7	156.41	260.8	82.2	676.2	654.0	22.13	30.560		
4,500.0	4,419.8	4,448.1	4,425.6	16.9	11.0	155.76	277.5	83.6	696.6	673.7	22.82	30.523		
4,600.0	4,517.0	4,545.7	4,521.7	17.4	11.3	155.15	294.3	85.1	717.0	693.5	23.52	30.485		
4,700.0	4,614.3	4,643.3	4,617.8	17.9	11.7	154.57	311.0	86.5	737.6	713.4	24.23	30.447		
4,800.0	4,711.5	4,740.9	4,714.0	18.4	12.0	154.02	327.8	87.9	758.2	733.3	24.93	30.408		
4,900.0	4,808.7	4,838.5	4,810.1	18.9	12.3	153.50	344.6	89.4	778.9	753.2	25.65	30.369		
5,000.0	4,906.0	4,936.1	4,906.3	19.4	12.7	153.01	361.3	90.8	799.6	773.3	26.36	30.331		

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-423 - Wellbore #1 - Plan #1 (3-15-16)													Offset Site Error: 0.0 ft		
Survey Program: 0-MWD														Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
5,100.0	5,003.2	5,033.7	5,002.4	19.9	13.0	152.54	378.1	92.2	820.4	793.3	27.08	30.293			
5,200.0	5,100.4	5,131.3	5,098.5	20.4	13.4	152.10	394.8	93.7	841.3	813.5	27.81	30.255			
5,300.0	5,197.8	5,229.0	5,194.8	20.9	13.7	151.78	411.6	95.1	861.5	832.9	28.56	30.163			
5,400.0	5,296.0	5,327.2	5,291.5	21.2	14.1	151.42	428.5	96.5	878.8	849.5	29.28	30.010			
5,500.0	5,394.7	5,425.7	5,388.5	21.5	14.4	150.94	445.4	98.0	893.3	863.3	29.99	29.790			
5,600.0	5,493.9	5,524.4	5,485.7	21.7	14.8	150.34	462.3	99.4	904.8	874.1	30.66	29.509			
5,700.0	5,593.5	5,624.7	5,584.7	22.0	15.1	149.69	478.5	100.8	913.4	882.1	31.26	29.219			
5,800.0	5,693.3	5,726.1	5,685.3	22.1	15.4	149.11	491.4	101.9	918.9	887.2	31.75	28.943			
5,900.0	5,793.3	5,828.2	5,786.9	22.2	15.6	148.62	500.7	102.7	921.3	889.1	32.16	28.651			
6,000.0	5,893.3	5,930.7	5,889.3	22.4	15.8	90.03	506.5	103.2	921.8	889.2	32.55	28.319			
6,100.0	5,993.3	6,033.5	5,992.1	22.5	16.0	-90.14	508.6	103.4	921.9	889.0	32.90	28.026			
6,200.0	6,092.7	6,133.1	6,091.7	22.5	16.1	-90.78	508.6	103.4	922.0	888.8	33.20	27.775			
6,300.0	6,189.8	6,234.3	6,192.6	22.5	16.2	-91.87	502.8	103.4	922.4	889.1	33.37	27.640			
6,400.0	6,283.1	6,338.1	6,294.4	22.4	16.2	-92.94	483.0	103.4	923.2	889.9	33.33	27.697			
6,500.0	6,370.9	6,444.6	6,395.1	22.2	16.1	-93.97	448.5	103.4	924.2	891.1	33.10	27.924			
6,600.0	6,451.7	6,553.7	6,492.3	22.0	15.9	-94.94	399.1	103.4	925.5	892.7	32.73	28.279			
6,700.0	6,524.1	6,665.6	6,583.5	21.8	15.7	-95.83	334.6	103.4	926.8	894.5	32.31	28.687			
6,800.0	6,586.9	6,780.0	6,666.1	21.6	15.5	-96.62	255.5	103.4	928.2	896.3	31.96	29.041			
6,900.0	6,639.1	6,896.7	6,737.2	21.4	15.4	-97.29	163.1	103.4	929.5	897.7	31.83	29.206			
7,000.0	6,679.6	7,015.4	6,794.3	21.3	15.5	-97.82	59.1	103.4	930.6	898.6	32.05	29.036			
7,100.0	6,707.9	7,135.8	6,835.0	21.2	15.9	-98.19	-54.0	103.4	931.4	898.7	32.74	28.453			
7,200.0	6,723.5	7,257.1	6,857.6	21.2	16.6	-98.38	-173.0	103.4	931.9	898.0	33.93	27.464			
7,300.0	6,726.4	7,371.8	6,862.0	21.5	17.4	-98.43	-287.6	103.4	932.0	896.4	35.55	26.218			
7,400.0	6,725.7	7,471.8	6,862.0	21.9	18.4	-98.47	-387.6	103.4	932.1	894.7	37.38	24.938			
7,500.0	6,725.0	7,571.8	6,862.0	22.6	19.5	-98.51	-487.6	103.4	932.2	892.7	39.48	23.613			
7,600.0	6,724.3	7,671.8	6,862.0	23.6	20.7	-98.55	-587.6	103.4	932.3	890.5	41.82	22.293			
7,700.0	6,723.6	7,771.8	6,862.0	24.7	22.0	-98.60	-687.6	103.4	932.4	888.0	44.37	21.016			
7,800.0	6,722.9	7,871.8	6,862.0	25.9	23.4	-98.64	-787.6	103.4	932.5	885.4	47.08	19.807			
7,900.0	6,722.3	7,971.7	6,862.0	27.2	24.8	-98.68	-887.6	103.4	932.6	882.7	49.94	18.676			
8,000.0	6,721.6	8,071.7	6,862.0	28.6	26.3	-98.72	-987.6	103.4	932.7	879.8	52.91	17.628			
8,100.0	6,720.9	8,171.7	6,862.0	30.1	27.9	-98.76	-1,087.5	103.4	932.8	876.8	55.98	16.663			
8,200.0	6,720.2	8,271.7	6,862.0	31.6	29.5	-98.81	-1,187.5	103.4	932.9	873.8	59.14	15.775			
8,300.0	6,719.5	8,371.7	6,862.0	33.1	31.2	-98.85	-1,287.5	103.4	933.0	870.7	62.37	14.960			
8,400.0	6,718.8	8,471.7	6,862.0	34.7	32.8	-98.89	-1,387.5	103.4	933.2	867.5	65.66	14.212			
8,500.0	6,718.1	8,571.7	6,862.0	36.3	34.5	-98.93	-1,487.5	103.4	933.3	864.3	69.00	13.526			
8,600.0	6,717.4	8,671.7	6,862.0	38.0	36.2	-98.98	-1,587.5	103.4	933.4	861.0	72.38	12.895			
8,700.0	6,716.7	8,771.7	6,862.0	39.7	38.0	-99.02	-1,687.5	103.4	933.5	857.7	75.80	12.314			
8,800.0	6,716.0	8,871.7	6,862.0	41.4	39.7	-99.06	-1,787.5	103.4	933.6	854.3	79.26	11.779			
8,900.0	6,715.3	8,971.7	6,862.0	43.1	41.5	-99.10	-1,887.5	103.4	933.7	851.0	82.74	11.284			
9,000.0	6,714.6	9,071.7	6,862.0	44.8	43.3	-99.15	-1,987.5	103.4	933.8	847.6	86.25	10.826			
9,100.0	6,713.9	9,171.7	6,862.0	46.5	45.1	-99.19	-2,087.5	103.4	933.9	844.1	89.79	10.402			
9,200.0	6,713.2	9,271.7	6,862.0	48.3	46.9	-99.23	-2,187.5	103.4	934.0	840.7	93.34	10.007			
9,300.0	6,712.5	9,371.7	6,862.0	50.1	48.7	-99.27	-2,287.5	103.4	934.1	837.2	96.91	9.640			
9,400.0	6,711.8	9,471.7	6,862.0	51.8	50.5	-99.31	-2,387.5	103.4	934.3	833.8	100.49	9.297			
9,500.0	6,711.1	9,571.7	6,862.0	53.6	52.4	-99.36	-2,487.5	103.4	934.4	830.3	104.09	8.977			
9,600.0	6,710.4	9,671.7	6,862.0	55.4	54.2	-99.40	-2,587.5	103.4	934.5	826.8	107.70	8.677			
9,700.0	6,709.7	9,771.7	6,862.0	57.2	56.0	-99.44	-2,687.5	103.4	934.6	823.3	111.32	8.396			
9,800.0	6,709.0	9,871.7	6,862.0	59.0	57.9	-99.48	-2,787.5	103.4	934.7	819.8	114.95	8.131			
9,900.0	6,708.3	9,971.7	6,862.0	60.8	59.7	-99.53	-2,887.5	103.4	934.8	816.2	118.59	7.883			
10,000.0	6,707.6	10,071.7	6,862.0	62.7	61.6	-99.57	-2,987.5	103.4	934.9	812.7	122.24	7.649			

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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29R-423 - Wellbore #1 - Plan #1 (3-15-16)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,100.0	6,706.9	10,171.7	6,862.0	64.5	63.5	-99.61	-3,087.5	103.4	935.1	809.2	125.89	7.427		
10,200.0	6,706.2	10,271.7	6,862.0	66.3	65.3	-99.65	-3,187.5	103.4	935.2	805.6	129.55	7.218		
10,300.0	6,705.5	10,371.7	6,862.0	68.2	67.2	-99.69	-3,287.5	103.4	935.3	802.1	133.22	7.021		
10,400.0	6,704.8	10,471.7	6,862.0	70.0	69.1	-99.74	-3,387.5	103.4	935.4	798.5	136.90	6.833		
10,500.0	6,704.1	10,571.7	6,862.0	71.8	70.9	-99.78	-3,487.5	103.4	935.5	795.0	140.57	6.655		
10,600.0	6,703.4	10,671.7	6,862.0	73.7	72.8	-99.82	-3,587.5	103.4	935.7	791.4	144.25	6.486		
10,700.0	6,702.7	10,771.7	6,862.0	75.5	74.7	-99.86	-3,687.5	103.4	935.8	787.8	147.94	6.325		
10,800.0	6,702.0	10,871.7	6,862.0	77.4	76.6	-99.91	-3,787.5	103.4	935.9	784.3	151.63	6.172		
10,900.0	6,701.3	10,971.7	6,862.0	79.3	78.4	-99.95	-3,887.5	103.4	936.0	780.7	155.32	6.026		
11,000.0	6,700.6	11,071.7	6,862.0	81.1	80.3	-99.99	-3,987.5	103.4	936.1	777.1	159.02	5.887		
11,100.0	6,699.9	11,171.7	6,862.0	83.0	82.2	-100.03	-4,087.5	103.4	936.3	773.5	162.72	5.754		
11,200.0	6,699.2	11,271.7	6,862.0	84.8	84.1	-100.07	-4,187.5	103.4	936.4	770.0	166.42	5.627		
11,300.0	6,698.5	11,371.7	6,862.0	86.7	86.0	-100.12	-4,287.5	103.4	936.5	766.4	170.12	5.505		
11,400.0	6,697.8	11,471.7	6,862.0	88.6	87.9	-100.16	-4,387.5	103.4	936.6	762.8	173.83	5.388		
11,500.0	6,697.1	11,571.7	6,862.0	90.5	89.8	-100.20	-4,487.5	103.4	936.8	759.2	177.54	5.276		
11,600.0	6,696.4	11,671.7	6,862.0	92.3	91.6	-100.24	-4,587.5	103.4	936.9	755.6	181.24	5.169		
11,700.0	6,695.7	11,771.7	6,862.0	94.2	93.5	-100.28	-4,687.5	103.4	937.0	752.0	184.96	5.066		
11,800.0	6,695.0	11,871.7	6,862.0	96.1	95.4	-100.33	-4,787.5	103.4	937.1	748.5	188.67	4.967		
11,900.0	6,694.3	11,971.7	6,862.0	98.0	97.3	-100.37	-4,887.5	103.4	937.3	744.9	192.38	4.872		
12,000.0	6,693.6	12,071.6	6,862.0	99.8	99.2	-100.41	-4,987.5	103.4	937.4	741.3	196.09	4.780		
12,100.0	6,692.9	12,171.6	6,862.0	101.7	101.1	-100.45	-5,087.5	103.4	937.5	737.7	199.81	4.692		
12,200.0	6,692.2	12,271.6	6,862.0	103.6	103.0	-100.49	-5,187.4	103.4	937.6	734.1	203.53	4.607		
12,300.0	6,691.5	12,371.6	6,862.0	105.5	104.9	-100.54	-5,287.4	103.4	937.8	730.5	207.24	4.525		
12,400.0	6,690.8	12,471.6	6,862.0	107.4	106.8	-100.58	-5,387.4	103.4	937.9	726.9	210.96	4.446		
12,500.0	6,690.1	12,571.6	6,862.0	109.3	108.7	-100.62	-5,487.4	103.4	938.0	723.3	214.68	4.369		
12,600.0	6,689.4	12,671.6	6,862.0	111.2	110.6	-100.66	-5,587.4	103.4	938.1	719.7	218.40	4.296		
12,700.0	6,688.7	12,771.6	6,862.0	113.1	112.5	-100.70	-5,687.4	103.4	938.3	716.2	222.12	4.224		
12,800.0	6,688.0	12,871.6	6,862.0	114.9	114.4	-100.74	-5,787.4	103.4	938.4	712.6	225.84	4.155		
12,900.0	6,687.3	12,971.6	6,862.0	116.8	116.3	-100.79	-5,887.4	103.4	938.5	709.0	229.56	4.088		
13,000.0	6,686.6	13,071.6	6,862.0	118.7	118.2	-100.83	-5,987.4	103.4	938.7	705.4	233.28	4.024		
13,100.0	6,685.9	13,171.6	6,862.0	120.6	120.1	-100.87	-6,087.4	103.4	938.8	701.8	237.00	3.961		
13,200.0	6,685.3	13,271.6	6,862.0	122.5	122.0	-100.91	-6,187.4	103.4	938.9	698.2	240.72	3.901		
13,300.0	6,684.6	13,371.6	6,862.0	124.4	123.9	-100.95	-6,287.4	103.4	939.1	694.6	244.44	3.842		
13,400.0	6,683.9	13,471.6	6,862.0	126.3	125.8	-101.00	-6,387.4	103.4	939.2	691.0	248.16	3.785		
13,500.0	6,683.2	13,571.6	6,862.0	128.2	127.7	-101.04	-6,487.4	103.4	939.3	687.5	251.88	3.729		
13,600.0	6,682.5	13,671.6	6,862.0	130.1	129.6	-101.08	-6,587.4	103.4	939.5	683.9	255.60	3.676		
13,700.0	6,681.8	13,771.6	6,862.0	132.0	131.6	-101.12	-6,687.4	103.4	939.6	680.3	259.32	3.623		
13,800.0	6,681.1	13,871.6	6,862.0	133.9	133.5	-101.16	-6,787.4	103.4	939.7	676.7	263.04	3.573		
13,900.0	6,680.4	13,971.6	6,862.0	135.8	135.4	-101.20	-6,887.4	103.4	939.9	673.1	266.76	3.523		
14,000.0	6,679.7	14,071.6	6,862.0	137.7	137.3	-101.25	-6,987.4	103.4	940.0	669.5	270.47	3.475		
14,100.0	6,679.0	14,171.6	6,862.0	139.6	139.2	-101.29	-7,087.4	103.4	940.1	665.9	274.19	3.429		
14,200.0	6,678.3	14,271.6	6,862.0	141.5	141.1	-101.33	-7,187.4	103.4	940.3	662.4	277.91	3.383		
14,300.0	6,677.6	14,371.6	6,862.0	143.4	143.0	-101.37	-7,287.4	103.4	940.4	658.8	281.63	3.339		
14,336.1	6,677.3	14,407.7	6,862.0	144.1	143.7	-101.39	-7,323.5	103.4	940.5	657.5	282.97	3.323		
14,381.8	6,677.0	14,445.8	6,862.0	144.9	144.4	-101.40	-7,361.6	103.4	940.6	656.0	284.53	3.306 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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-243 - Wellbore #1 - Plan #1 (3-15-16)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (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	90.46	-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	89.8	0.22	400.405		
200.0	200.0	200.0	200.0	0.3	0.3	90.46	-0.7	90.0	90.0	89.3	0.67	133.468		
300.0	300.0	300.0	300.0	0.6	0.6	90.46	-0.7	90.0	90.0	88.9	1.12	80.081		
400.0	400.0	400.0	400.0	0.8	0.8	90.46	-0.7	90.0	90.0	88.4	1.57	57.201 CC, ES		
500.0	500.0	498.4	498.4	1.0	1.0	89.87	0.2	90.9	90.9	88.9	2.02	45.070		
600.0	600.0	596.7	596.6	1.2	1.2	88.16	3.0	93.4	93.5	91.1	2.46	38.028		
700.0	700.0	694.7	694.4	1.5	1.5	85.54	7.6	97.7	98.2	95.3	2.91	33.715		
800.0	800.0	792.4	791.7	1.7	1.7	82.27	14.1	103.7	104.9	101.6	3.38	31.076		
900.0	900.0	889.5	888.2	1.9	2.0	78.68	22.3	111.3	114.1	110.2	3.86	29.542		
1,000.0	1,000.0	986.0	983.7	2.1	2.2	75.03	32.2	120.5	125.7	121.4	4.37	28.772 SF		
1,100.0	1,100.0	1,081.7	1,078.1	2.4	2.5	129.98	43.8	131.2	140.9	136.1	4.75	29.643		
1,200.0	1,199.9	1,176.4	1,171.0	2.6	2.9	127.60	57.0	143.4	160.1	154.9	5.22	30.693		
1,300.0	1,299.7	1,271.9	1,264.4	2.8	3.3	125.99	71.8	157.0	182.9	177.2	5.69	32.140		
1,400.0	1,399.3	1,368.8	1,359.1	3.0	3.7	125.20	87.0	171.1	207.5	201.3	6.17	33.619		
1,500.0	1,498.6	1,465.3	1,453.4	3.3	4.1	125.03	102.1	185.1	233.6	226.9	6.67	35.025		
1,600.0	1,597.5	1,561.4	1,547.2	3.6	4.5	125.30	117.2	199.0	261.1	253.9	7.18	36.363		
1,700.0	1,696.1	1,657.0	1,640.6	3.9	4.9	125.87	132.2	212.9	290.2	282.4	7.71	37.613		
1,800.0	1,794.2	1,752.0	1,733.5	4.2	5.3	126.64	147.1	226.6	320.8	312.5	8.27	38.784		
1,900.0	1,891.7	1,846.4	1,825.7	4.6	5.7	127.54	161.9	240.3	353.0	344.1	8.85	39.883		
2,000.0	1,988.9	1,940.4	1,917.5	5.0	6.2	128.79	176.6	254.0	386.1	376.6	9.47	40.757		
2,100.0	2,086.2	2,034.5	2,009.4	5.4	6.6	129.85	191.3	267.6	419.4	409.3	10.11	41.485		
2,200.0	2,183.4	2,128.5	2,101.3	5.8	7.0	130.75	206.1	281.2	452.8	442.0	10.75	42.098		
2,300.0	2,280.6	2,222.6	2,193.2	6.3	7.4	131.52	220.8	294.9	486.2	474.8	11.41	42.621		
2,400.0	2,377.9	2,316.6	2,285.0	6.7	7.8	132.20	235.6	308.5	519.8	507.7	12.07	43.070		
2,500.0	2,475.1	2,410.6	2,376.9	7.2	8.3	132.79	250.3	322.1	553.4	540.6	12.73	43.460		
2,600.0	2,572.3	2,504.7	2,468.8	7.7	8.7	133.32	265.1	335.7	587.0	573.6	13.40	43.802		
2,700.0	2,669.6	2,598.7	2,560.6	8.1	9.1	133.79	279.8	349.4	620.7	606.6	14.07	44.102		
2,800.0	2,766.8	2,692.8	2,652.5	8.6	9.5	134.21	294.6	363.0	654.4	639.6	14.75	44.369		
2,900.0	2,864.0	2,786.8	2,744.4	9.1	10.0	134.59	309.3	376.6	688.1	672.7	15.43	44.606		
3,000.0	2,961.3	2,880.9	2,836.3	9.6	10.4	134.94	324.0	390.3	721.9	705.8	16.11	44.820		
3,100.0	3,058.5	2,974.9	2,928.1	10.0	10.8	135.25	338.8	403.9	755.7	738.9	16.79	45.012		
3,200.0	3,155.7	3,068.9	3,020.0	10.5	11.3	135.54	353.5	417.5	789.5	772.0	17.47	45.187		
3,300.0	3,253.0	3,163.0	3,111.9	11.0	11.7	135.80	368.3	431.2	823.3	805.2	18.16	45.345		
3,400.0	3,350.2	3,257.0	3,203.8	11.5	12.1	136.05	383.0	444.8	857.2	838.3	18.84	45.490		
3,500.0	3,447.4	3,351.1	3,295.6	12.0	12.5	136.27	397.8	458.4	891.0	871.5	19.53	45.623		
3,600.0	3,544.7	3,445.1	3,387.5	12.5	13.0	136.48	412.5	472.1	924.9	904.7	20.22	45.745		
3,700.0	3,641.9	3,539.1	3,479.4	13.0	13.4	136.67	427.2	485.7	958.7	937.8	20.91	45.858		
3,800.0	3,739.1	3,633.2	3,571.2	13.5	13.8	136.85	442.0	499.3	992.6	971.0	21.60	45.962		

<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W - Ottenhoff 29U-343 - Wellbore #1 - Plan #1 (3-15-16)													Offset Site Error:	0.0 ft	
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
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	0.22	469.700			
200.0	200.0	199.0	199.0	0.3	0.3	90.59	-1.1	105.0	105.0	104.4	0.67	156.306	CC, ES		
300.0	300.0	296.9	296.9	0.6	0.6	90.19	-0.4	106.0	106.0	104.9	1.11	95.298			
400.0	400.0	394.6	394.5	0.8	0.8	89.01	1.9	109.0	109.1	107.6	1.56	70.094			
500.0	500.0	492.0	491.8	1.0	1.0	87.18	5.6	114.0	114.3	112.3	2.01	56.807			
600.0	600.0	589.1	588.5	1.2	1.3	84.89	10.8	120.9	121.8	119.3	2.49	49.010			
700.0	700.0	685.7	684.4	1.5	1.5	82.34	17.4	129.7	131.7	128.7	2.98	44.176			
800.0	800.0	781.7	779.4	1.7	1.8	79.71	25.5	140.4	144.0	140.5	3.50	41.132			
900.0	900.0	876.9	873.4	1.9	2.1	77.15	34.9	152.9	158.9	154.8	4.05	39.237			
1,000.0	1,000.0	971.3	966.1	2.1	2.5	74.75	45.5	167.1	176.3	171.6	4.62	38.115	SF		
1,100.0	1,100.0	1,064.6	1,057.3	2.4	2.9	130.83	57.5	182.9	197.1	192.3	4.80	41.046			
1,200.0	1,199.9	1,156.6	1,146.6	2.6	3.3	129.31	70.5	200.3	221.9	216.6	5.27	42.129			
1,300.0	1,299.7	1,248.7	1,235.6	2.8	3.8	128.30	84.8	219.3	250.5	244.7	5.74	43.617			
1,400.0	1,399.3	1,343.9	1,327.4	3.0	4.3	127.77	99.9	239.4	281.2	274.9	6.23	45.152			
1,500.0	1,498.6	1,438.5	1,418.7	3.3	4.8	127.65	114.9	259.3	313.4	306.7	6.72	46.640			
1,600.0	1,597.5	1,532.6	1,509.5	3.6	5.3	127.81	129.8	279.2	347.1	339.9	7.23	48.037			
1,700.0	1,696.1	1,626.1	1,599.6	3.9	5.8	128.18	144.7	298.9	382.4	374.7	7.75	49.342			
1,800.0	1,794.2	1,718.8	1,689.0	4.2	6.3	128.68	159.4	318.5	419.3	411.0	8.29	50.555			
1,900.0	1,891.7	1,810.8	1,777.7	4.6	6.8	129.28	173.9	337.9	457.8	449.0	8.86	51.679			
2,000.0	1,988.9	1,902.3	1,866.0	5.0	7.3	130.32	188.5	357.2	497.2	487.8	9.47	52.482			
2,100.0	2,086.2	1,993.9	1,954.3	5.4	7.8	131.21	203.0	376.5	536.8	526.7	10.10	53.129			
2,200.0	2,183.4	2,085.4	2,042.6	5.8	8.3	131.98	217.5	395.8	576.4	565.7	10.74	53.657			
2,300.0	2,280.6	2,177.0	2,131.0	6.3	8.8	132.65	232.0	415.1	616.1	604.8	11.39	54.095			
2,400.0	2,377.9	2,268.5	2,219.3	6.7	9.3	133.24	246.5	434.4	655.9	643.9	12.04	54.461			
2,500.0	2,475.1	2,360.0	2,307.6	7.2	9.8	133.76	261.1	453.7	695.8	683.1	12.70	54.771			
2,600.0	2,572.3	2,451.6	2,395.9	7.7	10.3	134.23	275.6	473.0	735.6	722.3	13.37	55.035			
2,700.0	2,669.6	2,543.1	2,484.2	8.1	10.8	134.65	290.1	492.3	775.6	761.5	14.03	55.263			
2,800.0	2,766.8	2,634.7	2,572.5	8.6	11.3	135.03	304.6	511.6	815.5	800.8	14.70	55.461			
2,900.0	2,864.0	2,726.2	2,660.8	9.1	11.8	135.37	319.1	531.0	855.5	840.1	15.38	55.633			
3,000.0	2,961.3	2,817.8	2,749.1	9.6	12.3	135.68	333.6	550.3	895.5	879.4	16.05	55.785			
3,100.0	3,058.5	2,909.3	2,837.4	10.0	12.8	135.96	348.2	569.6	935.5	918.7	16.73	55.919			
3,200.0	3,155.7	3,000.9	2,925.7	10.5	13.3	136.23	362.7	588.9	975.5	958.1	17.41	56.039			

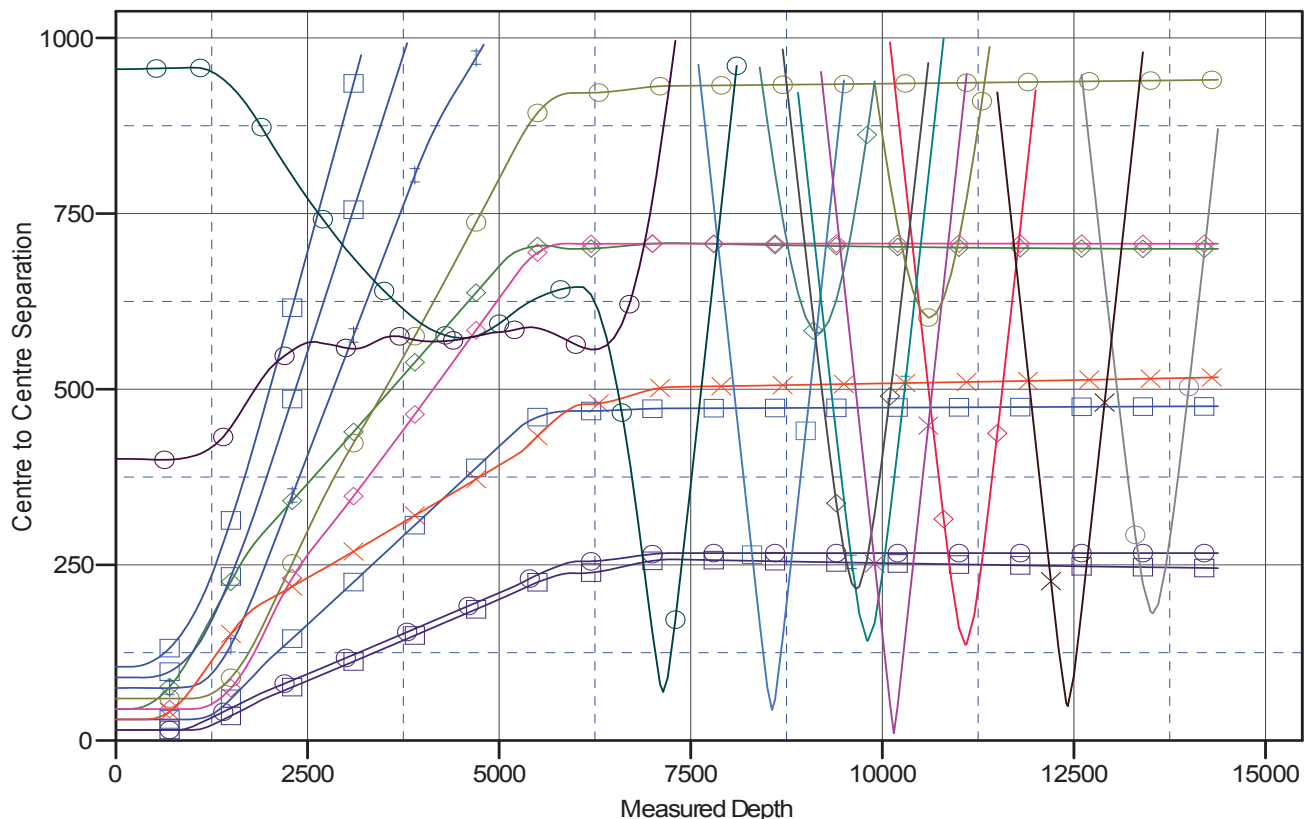


<b>Company:</b>	PETROLEUM DEVELOPMENT CORP DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Ottenhoff 29R-243
<b>Project:</b>	SEC.29-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<b>Reference Site:</b>	Ottenhoff 5N64W29CR Pad Sec.29-T5N-R64W	<b>MD Reference:</b>	WELL @ 4686.0ft (RKB - 23')
<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

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

Coordinates are relative to: Ottenhoff 29R-243  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.60°

## Ladder Plot



## LEGEND

Ottenhoff 29R-143, Wellbore #1, Plan #1 (3-14-16) V0	Ottenhoff 29U-343, Wellbore #1, Plan #1 (3-15-16) V0	Ottenhoff #29-1 (Exist), Wellbore #1, Wellbore
Ottenhoff 29R-323, Wellbore #1, Plan #1 (3-15-16) V0	Ottenhoff 29M-423, Wellbore #1, Plan #1 (3-14-16) V0	Ottenhoff 41-6B (Exist), Wellbore #1, Wellbore
Ottenhoff 29M-323, Wellbore #1, Plan #1 (3-14-16) V0	Ottenhoff 29U-243, Wellbore #1, Plan #1 (3-15-16) V0	Blake #B29-10 (D&A), Wellbore #1, Wellbore #
Ottenhoff 29M-203, Wellbore #1, Plan #1 (3-14-16) V0	Pearlman #32-13 (Exist), Wellbore #1, Wellbore #1 V0	Blake #B 29-10X (Exist), Wellbore #1, Wellbor
Ottenhoff 29R-423, Wellbore #1, Plan #1 (3-15-16) V0	Blake #B29-15 (Exist), Wellbore #1, Wellbore #1 V0	Blake B #29-23 (Exist), Wellbore #1, Wellbore
Ottenhoff 29R-203, Wellbore #1, Plan #1 (3-14-16) V0	Carlson 29-1 (Exist), Wellbore #1, Wellbore #1 V0	Bell B29-24D, Bell B29-24D, Bell B29-24D V0
Ottenhoff 29R-303, Wellbore #1, Plan #1 (3-15-16) V0	DIC Cross #31-32 (P&A), Wellbore #1, Wellbore #1 V0	Bell B29-22D, Bell B29-22D, Bell B29-22D V0



<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>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	US_EDM
<b>Reference Design:</b>	Plan #1 (3-14-16)	<b>Offset TVD Reference:</b>	Offset Datum

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

Coordinates are relative to: Ottenhoff 29R-243  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.60°

