

# PETROLEUM DEVELOPMENT CORP Weld County CO

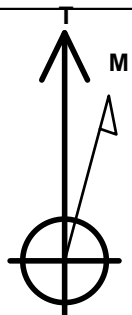
Well Name: **Suden 34R-323**

Surface Location: Suden 34U-HZ Pad Sec.34-T5N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 4667.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1376383.30	3270145.76	40.362520	-104.530550	
RKB - 15' WELL @ 4682.0ft (RKB - 15')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 212'FNL & 1172'FEL	1.0	0.0	0.0	Point
BHL 500'FSL & 1065'FEL	6690.0	-4572.1	142.2	Point



Azimuths to True North  
Magnetic North: 8.37°

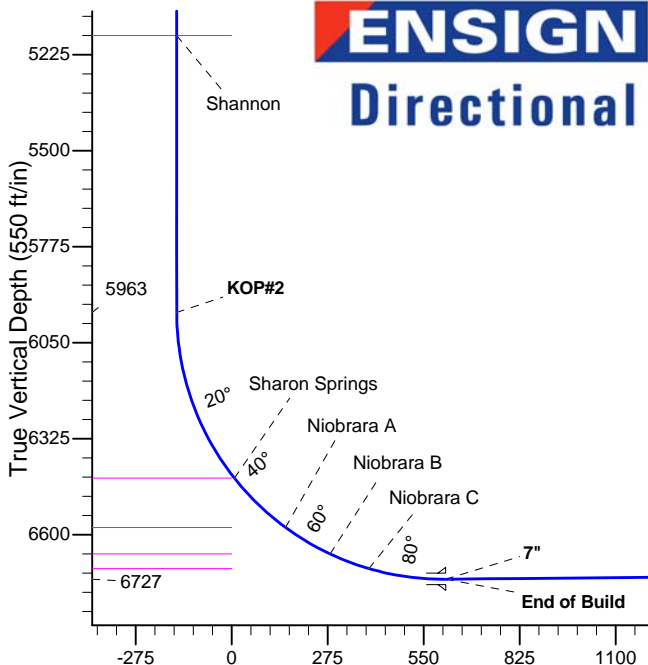
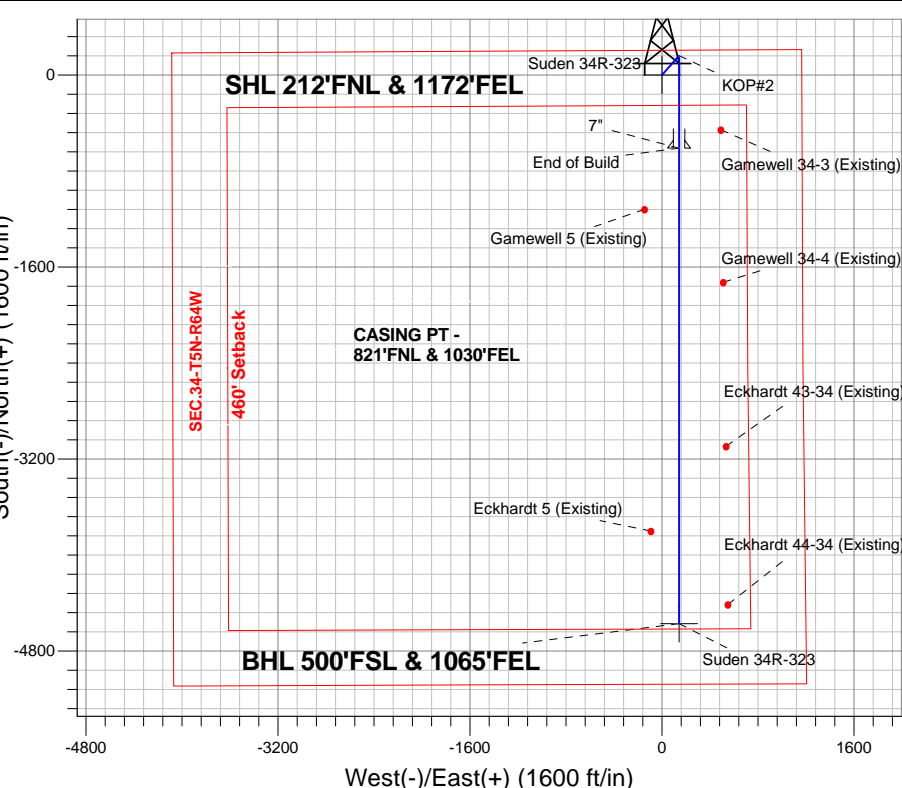
Magnetic Field  
Strength: 52851.0nT  
Dip Angle: 66.96°  
Date: 3/4/2014  
Model: IGRF2010

Suden 34U-HZ Pad Sec.34-T5N-R64W  
Suden 34R-323  
Plan #1 (2-13-14)  
16:32, March 04 2014

## ANNOTATIONS

TVD	MD	Annotation
2500.0	2500.0	KOP #1
5963.4	5973.4	KOP#2
6727.4	7180.6	End of Build

South(-)/North(+) (1600 ft/in)



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2500.0	0.00	0.00	2500.0	0.0	0.0	0.00	0.00	0.0	
3	2776.9	5.54	41.28	2776.5	10.1	8.8	2.00	41.28	-9.8	
4	4733.1	5.54	41.28	4723.5	151.9	133.4	0.00	0.00	-147.7	
5	5010.0	0.00	0.00	5000.0	162.0	142.2	2.00	180.00	-157.5	
6	5973.4	0.00	0.00	5963.4	162.0	142.2	0.00	0.00	-157.5	
7	7180.6	90.54	180.00	6727.4	-609.1	142.2	7.50	180.00	613.3	
8	11143.7	90.54	180.00	6690.0	-4572.1	142.2	0.00	0.00	4574.3	BHL 500'FSL & 1065'FEL

BHL 500'FSL & 1065'FEL

Vertical Section at 178.22° (550 ft/in)



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.34-T5N-R64W**

**Suden 34U-HZ Pad Sec.34-T5N-R64W**

**Suden 34R-323**

**Wellbore #1**

**Plan: Plan #1 (2-13-14)**

## **Standard Planning Report**

**04 March, 2014**

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Project:</b>	SEC.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-13-14)		

<b>Project</b>	SEC.34-T5N-R64W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site						Suden 34U-HZ Pad Sec.34-T5N-R64W											
Site Position:						Northing:			1,376,383.32 ft			Latitude:			40.362520		
From:			Lat/Long			Easting:			3,270,145.76 ft			Longitude:			-104.530550		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.63 °		

Well	Suden 34R-323					
Well Position	+N/-S	0.0 ft	Northing:	1,376,383.30 ft	Latitude:	40.362520
	+E/-W	0.0 ft	Easting:	3,270,145.76 ft	Longitude:	-104.530550
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,667.0 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	3/4/2014	8.37	66.96	52,851

<b>Design</b>	Plan #1 (2-13-14)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	178.22

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,776.9	5.54	41.28	2,776.5	10.1	8.8	2.00	2.00	0.00	41.28	
4,733.1	5.54	41.28	4,723.5	151.9	133.4	0.00	0.00	0.00	0.00	
5,010.0	0.00	0.00	5,000.0	162.0	142.2	2.00	-2.00	0.00	180.00	
5,973.4	0.00	0.00	5,963.4	162.0	142.2	0.00	0.00	0.00	0.00	
7,180.6	90.54	180.00	6,727.4	-609.1	142.2	7.50	7.50	0.00	180.00	
11,143.7	90.54	180.00	6,690.0	-4,572.1	142.2	0.00	0.00	0.00	0.00	BHL 500'FSL & 106

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Project:</b>	SEC.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-13-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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 212'FNL & 1172'FEL									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
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
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
2,600.0	2.00	41.28	2,600.0	1.3	1.2	-1.3	2.00	2.00	0.00
2,700.0	4.00	41.28	2,699.8	5.2	4.6	-5.1	2.00	2.00	0.00
2,776.9	5.54	41.28	2,776.5	10.1	8.8	-9.8	2.00	2.00	0.00
2,800.0	5.54	41.28	2,799.5	11.7	10.3	-11.4	0.00	0.00	0.00
2,900.0	5.54	41.28	2,899.0	19.0	16.7	-18.5	0.00	0.00	0.00
3,000.0	5.54	41.28	2,998.5	26.2	23.0	-25.5	0.00	0.00	0.00
3,100.0	5.54	41.28	3,098.1	33.5	29.4	-32.6	0.00	0.00	0.00
3,200.0	5.54	41.28	3,197.6	40.7	35.8	-39.6	0.00	0.00	0.00
3,300.0	5.54	41.28	3,297.1	48.0	42.1	-46.7	0.00	0.00	0.00
3,400.0	5.54	41.28	3,396.7	55.2	48.5	-53.7	0.00	0.00	0.00
3,500.0	5.54	41.28	3,496.2	62.5	54.9	-60.8	0.00	0.00	0.00
3,503.8	5.54	41.28	3,500.0	62.8	55.1	-61.0	0.00	0.00	0.00
Parkman									
3,600.0	5.54	41.28	3,595.7	69.8	61.2	-67.8	0.00	0.00	0.00
3,700.0	5.54	41.28	3,695.3	77.0	67.6	-74.9	0.00	0.00	0.00
3,800.0	5.54	41.28	3,794.8	84.3	74.0	-81.9	0.00	0.00	0.00
3,900.0	5.54	41.28	3,894.3	91.5	80.3	-89.0	0.00	0.00	0.00
4,000.0	5.54	41.28	3,993.9	98.8	86.7	-96.0	0.00	0.00	0.00
4,100.0	5.54	41.28	4,093.4	106.0	93.1	-103.1	0.00	0.00	0.00
4,200.0	5.54	41.28	4,192.9	113.3	99.4	-110.1	0.00	0.00	0.00
4,257.3	5.54	41.28	4,250.0	117.4	103.1	-114.2	0.00	0.00	0.00
Sussex									
4,300.0	5.54	41.28	4,292.5	120.5	105.8	-117.2	0.00	0.00	0.00
4,400.0	5.54	41.28	4,392.0	127.8	112.2	-124.2	0.00	0.00	0.00

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<b>Project:</b>	SEC.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-13-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	5.54	41.28	4,491.5	135.0	118.5	-131.3	0.00	0.00	0.00
4,600.0	5.54	41.28	4,591.1	142.3	124.9	-138.3	0.00	0.00	0.00
4,700.0	5.54	41.28	4,690.6	149.5	131.3	-145.4	0.00	0.00	0.00
4,733.1	5.54	41.28	4,723.5	151.9	133.4	-147.7	0.00	0.00	0.00
4,800.0	4.20	41.28	4,790.2	156.2	137.1	-151.9	2.00	-2.00	0.00
4,900.0	2.20	41.28	4,890.0	160.4	140.8	-156.0	2.00	-2.00	0.00
5,000.0	0.20	41.28	4,990.0	162.0	142.2	-157.5	2.00	-2.00	0.00
5,010.0	0.00	0.00	5,000.0	162.0	142.2	-157.5	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,090.0	162.0	142.2	-157.5	0.00	0.00	0.00
5,180.0	0.00	0.00	5,170.0	162.0	142.2	-157.5	0.00	0.00	0.00
<b>Shannon</b>									
5,200.0	0.00	0.00	5,190.0	162.0	142.2	-157.5	0.00	0.00	0.00
5,300.0	0.00	0.00	5,290.0	162.0	142.2	-157.5	0.00	0.00	0.00
5,400.0	0.00	0.00	5,390.0	162.0	142.2	-157.5	0.00	0.00	0.00
5,500.0	0.00	0.00	5,490.0	162.0	142.2	-157.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,590.0	162.0	142.2	-157.5	0.00	0.00	0.00
5,700.0	0.00	0.00	5,690.0	162.0	142.2	-157.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,790.0	162.0	142.2	-157.5	0.00	0.00	0.00
5,900.0	0.00	0.00	5,890.0	162.0	142.2	-157.5	0.00	0.00	0.00
5,973.4	0.00	0.00	5,963.4	162.0	142.2	-157.5	0.00	0.00	0.00
<b>KOP#2</b>									
6,000.0	1.99	180.00	5,990.0	161.5	142.2	-157.0	7.49	7.49	0.00
6,100.0	9.49	180.00	6,089.4	151.5	142.2	-147.0	7.50	7.50	0.00
6,200.0	16.99	180.00	6,186.7	128.6	142.2	-124.2	7.50	7.50	0.00
6,300.0	24.49	180.00	6,280.1	93.3	142.2	-88.8	7.50	7.50	0.00
6,400.0	31.99	180.00	6,368.2	46.0	142.2	-41.5	7.50	7.50	0.00
6,485.5	38.40	180.00	6,438.0	-3.3	142.2	7.7	7.50	7.50	0.00
<b>Sharon Springs</b>									
6,500.0	39.49	180.00	6,449.3	-12.4	142.2	16.8	7.50	7.50	0.00
6,600.0	46.99	180.00	6,522.1	-80.9	142.2	85.2	7.50	7.50	0.00
6,689.2	53.68	180.00	6,579.0	-149.5	142.2	153.9	7.50	7.50	0.00
<b>Niobrara A</b>									
6,700.0	54.49	180.00	6,585.3	-158.2	142.2	162.6	7.50	7.50	0.00
6,800.0	61.99	180.00	6,637.9	-243.2	142.2	247.5	7.50	7.50	0.00
6,838.2	64.86	180.00	6,655.0	-277.4	142.2	281.6	7.50	7.50	0.00
<b>Niobrara B</b>									
6,900.0	69.49	180.00	6,679.0	-334.3	142.2	338.6	7.50	7.50	0.00
6,957.3	73.79	180.00	6,697.0	-388.6	142.2	392.9	7.50	7.50	0.00
<b>Niobrara C</b>									
7,000.0	76.99	180.00	6,707.8	-430.0	142.2	434.2	7.50	7.50	0.00
7,100.0	84.49	180.00	6,723.9	-528.6	142.2	532.8	7.50	7.50	0.00
7,180.6	90.54	180.00	6,727.4	-609.1	142.2	613.2	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,200.0	90.54	180.00	6,727.2	-628.5	142.2	632.6	0.01	0.01	0.00
7,300.0	90.54	180.00	6,726.2	-728.5	142.2	732.6	0.00	0.00	0.00
7,400.0	90.54	180.00	6,725.3	-828.5	142.2	832.5	0.00	0.00	0.00
7,500.0	90.54	180.00	6,724.3	-928.5	142.2	932.5	0.00	0.00	0.00
7,600.0	90.54	180.00	6,723.4	-1,028.5	142.2	1,032.4	0.00	0.00	0.00
7,700.0	90.54	180.00	6,722.5	-1,128.5	142.2	1,132.4	0.00	0.00	0.00
7,800.0	90.54	180.00	6,721.5	-1,228.5	142.2	1,232.3	0.00	0.00	0.00
7,900.0	90.54	180.00	6,720.6	-1,328.5	142.2	1,332.3	0.00	0.00	0.00
8,000.0	90.54	180.00	6,719.6	-1,428.5	142.2	1,432.2	0.00	0.00	0.00

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<b>Project:</b>	SEC.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-13-14)		

#### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,100.0	90.54	180.00	6,718.7	-1,528.5	142.2	1,532.1	0.00	0.00	0.00
8,200.0	90.54	180.00	6,717.7	-1,628.5	142.2	1,632.1	0.00	0.00	0.00
8,300.0	90.54	180.00	6,716.8	-1,728.5	142.2	1,732.0	0.00	0.00	0.00
8,400.0	90.54	180.00	6,715.9	-1,828.5	142.2	1,832.0	0.00	0.00	0.00
8,500.0	90.54	180.00	6,714.9	-1,928.4	142.2	1,931.9	0.00	0.00	0.00
8,600.0	90.54	180.00	6,714.0	-2,028.4	142.2	2,031.9	0.00	0.00	0.00
8,700.0	90.54	180.00	6,713.0	-2,128.4	142.2	2,131.8	0.00	0.00	0.00
8,800.0	90.54	180.00	6,712.1	-2,228.4	142.2	2,231.8	0.00	0.00	0.00
8,900.0	90.54	180.00	6,711.1	-2,328.4	142.2	2,331.7	0.00	0.00	0.00
9,000.0	90.54	180.00	6,710.2	-2,428.4	142.2	2,431.7	0.00	0.00	0.00
9,100.0	90.54	180.00	6,709.3	-2,528.4	142.2	2,531.6	0.00	0.00	0.00
9,200.0	90.54	180.00	6,708.3	-2,628.4	142.2	2,631.6	0.00	0.00	0.00
9,300.0	90.54	180.00	6,707.4	-2,728.4	142.2	2,731.5	0.00	0.00	0.00
9,400.0	90.54	180.00	6,706.4	-2,828.4	142.2	2,831.5	0.00	0.00	0.00
9,500.0	90.54	180.00	6,705.5	-2,928.4	142.2	2,931.4	0.00	0.00	0.00
9,600.0	90.54	180.00	6,704.5	-3,028.4	142.2	3,031.4	0.00	0.00	0.00
9,700.0	90.54	180.00	6,703.6	-3,128.4	142.2	3,131.3	0.00	0.00	0.00
9,800.0	90.54	180.00	6,702.7	-3,228.4	142.2	3,231.3	0.00	0.00	0.00
9,900.0	90.54	180.00	6,701.7	-3,328.4	142.2	3,331.2	0.00	0.00	0.00
10,000.0	90.54	180.00	6,700.8	-3,428.4	142.2	3,431.1	0.00	0.00	0.00
10,100.0	90.54	180.00	6,699.8	-3,528.4	142.2	3,531.1	0.00	0.00	0.00
10,200.0	90.54	180.00	6,698.9	-3,628.4	142.2	3,631.0	0.00	0.00	0.00
10,300.0	90.54	180.00	6,698.0	-3,728.4	142.2	3,731.0	0.00	0.00	0.00
10,400.0	90.54	180.00	6,697.0	-3,828.4	142.2	3,830.9	0.00	0.00	0.00
10,500.0	90.54	180.00	6,696.1	-3,928.4	142.2	3,930.9	0.00	0.00	0.00
10,600.0	90.54	180.00	6,695.1	-4,028.4	142.2	4,030.8	0.00	0.00	0.00
10,700.0	90.54	180.00	6,694.2	-4,128.4	142.2	4,130.8	0.00	0.00	0.00
10,800.0	90.54	180.00	6,693.2	-4,228.3	142.2	4,230.7	0.00	0.00	0.00
10,900.0	90.54	180.00	6,692.3	-4,328.3	142.2	4,330.7	0.00	0.00	0.00
11,000.0	90.54	180.00	6,691.4	-4,428.3	142.2	4,430.6	0.00	0.00	0.00
11,100.0	90.54	180.00	6,690.4	-4,528.3	142.2	4,530.6	0.00	0.00	0.00
11,143.7	90.54	180.00	6,690.0	-4,572.1	142.2	4,574.3	0.00	0.00	0.00
BHL 500'FSL & 1065'FEL									

#### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,180.6	6,727.4	7"	7	7-1/2

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Project:</b>	SEC.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (2-13-14)		

#### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,503.8	3,500.0	Parkman		0.00	
4,257.3	4,250.0	Sussex		0.00	
5,180.0	5,170.0	Shannon		0.00	
6,485.5	6,438.0	Sharon Springs		0.00	
6,689.2	6,579.0	Niobrara A		0.00	
6,838.2	6,655.0	Niobrara B		0.00	
6,957.3	6,697.0	Niobrara C		0.00	

#### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,500.0	2,500.0	0.0	0.0	KOP #1
5,973.4	5,963.4	162.0	142.2	KOP#2
7,180.6	6,727.4	-609.1	142.2	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.34-T5N-R64W**

**Suden 34U-HZ Pad Sec.34-T5N-R64W**

**Suden 34R-323**

**Wellbore #1**

**Plan #1 (2-13-14)**

## **Anticollision Report**

**05 March, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (2-13-14)		
<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 1,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b> 3/4/2014			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,143.0	Plan #1 (2-13-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
Suden (Existing) Pad Sec.34-T5N-R64W						
Eckhardt 43-34 (Existing) - Wellbore #1 - Wellbore #1	9,664.8	6,625.0	393.6	199.8	2.031	CC, ES, SF
Eckhardt 44-34 (Existing) - Wellbore #1 - Wellbore #1	10,983.4	6,638.5	406.9	187.8	1.857	CC, ES
Eckhardt 44-34 (Existing) - Wellbore #1 - Wellbore #1	11,000.0	6,638.4	407.3	187.9	1.856	SF
Eckhardt 5 (Existing) - Wellbore #1 - Wellbore #1	10,371.4	6,642.3	234.1	26.5	1.128	Level 2, CC, ES, SF
Gamewell 34-3 (Existing) - Wellbore #1 - Wellbore #1	7,025.9	6,709.2	348.3	197.0	2.302	CC, ES, SF
Gamewell 34-4 (Existing) - Wellbore #1 - Wellbore #1	8,298.4	6,712.8	367.8	197.5	2.159	CC
Gamewell 34-4 (Existing) - Wellbore #1 - Wellbore #1	8,300.0	6,712.8	367.8	197.4	2.159	ES, SF
Gamewell 5 (Existing) - Wellbore #1 - Wellbore #1	7,689.9	6,717.6	287.1	126.5	1.788	CC, ES
Gamewell 5 (Existing) - Wellbore #1 - Wellbore #1	7,700.0	6,717.5	287.3	126.6	1.787	SF
Suden 34U-HZ Pad Sec.34-T5N-R64W						
Suden 34R-423 - Wellbore #1 - Plan #1 (2-13-14)	1,466.3	1,467.3	30.7	24.3	4.813	CC
Suden 34R-423 - Wellbore #1 - Plan #1 (2-13-14)	1,500.0	1,501.0	30.7	24.1	4.701	ES
Suden 34R-423 - Wellbore #1 - Plan #1 (2-13-14)	11,143.7	11,234.0	272.4	108.1	1.658	SF
Suden 34U-243 - Wellbore #1 - Plan #1 (2-13-14)	966.3	967.3	61.3	57.2	14.876	CC
Suden 34U-243 - Wellbore #1 - Plan #1 (2-13-14)	1,000.0	1,000.0	61.3	57.0	14.358	ES
Suden 34U-243 - Wellbore #1 - Plan #1 (2-13-14)	11,143.7	11,127.4	663.7	485.4	3.724	SF
Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)	166.0	168.0	89.2	88.7	169.572	CC
Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)	200.0	201.9	89.2	88.5	131.431	ES
Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)	11,143.7	11,318.9	995.9	818.4	5.612	SF

<b>Offset Design</b> Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 43-34 (Existing) - Wellbore #1 - Wellbore #1												
Survey Program: 6625-UNKNOWN												
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
8,800.0	6,712.1	6,625.0	6,625.0	45.6	132.5	-86.80	-3,093.0	535.1	950.1	772.3	177.79	5.344
8,900.0	6,711.1	6,625.0	6,625.0	47.4	132.5	-86.80	-3,093.0	535.1	860.1	680.5	179.62	4.789
9,000.0	6,710.2	6,625.0	6,625.0	49.2	132.5	-86.80	-3,093.0	535.1	772.5	591.1	181.45	4.258
9,100.0	6,709.3	6,625.0	6,625.0	51.1	132.5	-86.80	-3,093.0	535.1	688.4	505.1	183.28	3.756
9,200.0	6,708.3	6,625.0	6,625.0	52.9	132.5	-86.80	-3,093.0	535.1	609.0	423.9	185.12	3.290
9,300.0	6,707.4	6,625.0	6,625.0	54.8	132.5	-86.80	-3,093.0	535.1	536.6	349.6	186.97	2.870
9,400.0	6,706.4	6,625.0	6,625.0	56.6	132.5	-86.80	-3,093.0	535.1	474.3	285.5	188.82	2.512

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 43-34 (Existing) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 6625-UNKNOWN												<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
9,500.0	6,705.5	6,625.0	6,625.0	58.5	132.5	-86.80	-3,093.0	535.1	426.7	236.0	190.68	2.238	
9,600.0	6,704.5	6,625.0	6,625.0	60.3	132.5	-86.80	-3,093.0	535.1	398.9	206.3	192.54	2.072	
9,664.8	6,703.9	6,625.0	6,625.0	61.5	132.5	-86.80	-3,093.0	535.1	393.6	199.8	193.75	2.031	CC, ES, SF
9,700.0	6,703.6	6,625.0	6,625.0	62.2	132.5	-86.80	-3,093.0	535.1	395.1	200.7	194.40	2.033	
9,800.0	6,702.7	6,625.0	6,625.0	64.1	132.5	-86.80	-3,093.0	535.1	416.2	219.9	196.27	2.120	
9,900.0	6,701.7	6,625.0	6,625.0	65.9	132.5	-86.80	-3,093.0	535.1	458.5	260.4	198.14	2.314	
10,000.0	6,700.8	6,625.0	6,625.0	67.8	132.5	-86.80	-3,093.0	535.1	517.0	317.0	200.01	2.585	
10,100.0	6,699.8	6,625.0	6,625.0	69.7	132.5	-86.80	-3,093.0	535.1	586.8	384.9	201.89	2.906	
10,200.0	6,698.9	6,625.0	6,625.0	71.6	132.5	-86.80	-3,093.0	535.1	664.3	460.6	203.77	3.260	
10,300.0	6,698.0	6,625.0	6,625.0	73.5	132.5	-86.80	-3,093.0	535.1	747.3	541.6	205.65	3.634	
10,400.0	6,697.0	6,625.0	6,625.0	75.3	132.5	-86.80	-3,093.0	535.1	833.9	626.4	207.53	4.018	
10,500.0	6,696.1	6,625.0	6,625.0	77.2	132.5	-86.80	-3,093.0	535.1	923.3	713.9	209.41	4.409	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design      Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 44-34 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7010-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 +N/-S	Offset Wellbore Centre +E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)			
10,100.0	6,699.8	6,646.8	6,646.8	69.7	132.9	-91.17	-4,411.8	549.1	972.6	770.1	202.55	4.802		
10,200.0	6,698.9	6,645.9	6,645.9	71.6	132.9	-91.04	-4,411.8	549.1	882.8	678.4	204.42	4.319		
10,300.0	6,698.0	6,645.0	6,645.0	73.5	132.9	-90.91	-4,411.8	549.1	795.4	589.1	206.29	3.856		
10,400.0	6,697.0	6,644.0	6,644.0	75.3	132.9	-90.77	-4,411.8	549.1	711.3	503.2	208.16	3.417		
10,500.0	6,696.1	6,643.1	6,643.1	77.2	132.9	-90.64	-4,411.8	549.1	631.9	421.9	210.03	3.009		
10,600.0	6,695.1	6,642.1	6,642.1	79.1	132.8	-90.51	-4,411.8	549.1	559.1	347.2	211.91	2.638		
10,700.0	6,694.2	6,641.2	6,641.2	81.0	132.8	-90.38	-4,411.8	549.1	495.9	282.1	213.78	2.320		
10,800.0	6,693.2	6,640.2	6,640.2	82.9	132.8	-90.24	-4,411.8	549.1	446.4	230.7	215.66	2.070		
10,900.0	6,692.3	6,639.3	6,639.3	84.8	132.8	-90.11	-4,411.8	549.1	415.4	197.9	217.53	1.910		
10,983.4	6,691.5	6,638.5	6,638.5	86.4	132.8	-90.00	-4,411.8	549.1	406.9	187.8	219.10	1.857 CC, ES		
11,000.0	6,691.4	6,638.4	6,638.4	86.7	132.8	-89.98	-4,411.8	549.1	407.3	187.9	219.41	1.856 SF		
11,100.0	6,690.4	6,637.4	6,637.4	88.6	132.7	-89.85	-4,411.8	549.1	423.3	202.0	221.28	1.913		
11,143.7	6,690.0	6,637.0	6,637.0	89.2	132.7	-89.79	-4,411.8	549.1	437.4	215.4	221.95	1.971		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design      Suden (Existing) Pad Sec.34-T5N-R64W -   Eckhardt 5 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6915-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)			
9,400.0	6,706.4	6,651.4	6,651.4	56.6	133.0	92.24	-3,799.7	-92.0	999.2	809.7	189.49	5.273		
9,500.0	6,705.5	6,650.5	6,650.5	58.5	133.0	92.01	-3,799.7	-92.0	902.3	710.9	191.35	4.715		
9,600.0	6,704.5	6,649.5	6,649.5	60.3	133.0	91.78	-3,799.7	-92.0	806.1	612.9	193.22	4.172		
9,700.0	6,703.6	6,648.6	6,648.6	62.2	133.0	91.55	-3,799.7	-92.0	711.0	515.9	195.08	3.645		
9,800.0	6,702.7	6,647.7	6,647.7	64.1	133.0	91.32	-3,799.7	-92.0	617.5	420.5	196.95	3.135		
9,900.0	6,701.7	6,646.7	6,646.7	65.9	132.9	91.09	-3,799.7	-92.0	526.3	327.5	198.82	2.647		
10,000.0	6,700.8	6,645.8	6,645.8	67.8	132.9	90.86	-3,799.7	-92.0	439.0	238.3	200.68	2.188		
10,100.0	6,699.8	6,644.8	6,644.8	69.7	132.9	90.63	-3,799.7	-92.0	358.4	155.9	202.55	1.770		
10,200.0	6,698.9	6,643.9	6,643.9	71.6	132.9	90.40	-3,799.7	-92.0	290.2	85.7	204.42	1.419	Level 3	
10,300.0	6,698.0	6,643.0	6,643.0	73.5	132.9	90.16	-3,799.7	-92.0	244.8	38.5	206.28	1.187	Level 2	
10,371.4	6,697.3	6,642.3	6,642.3	74.8	132.8	90.00	-3,799.7	-92.0	234.1	26.5	207.61	1.128	Level 2, CC, ES, SF	
10,400.0	6,697.0	6,642.0	6,642.0	75.3	132.8	89.93	-3,799.7	-92.0	235.9	27.7	208.14	1.133	Level 2	
10,500.0	6,696.1	6,641.1	6,641.1	77.2	132.8	89.70	-3,799.7	-92.0	267.1	57.1	210.01	1.272	Level 3	
10,600.0	6,695.1	6,640.1	6,640.1	79.1	132.8	89.47	-3,799.7	-92.0	327.2	115.4	211.87	1.545		
10,700.0	6,694.2	6,639.2	6,639.2	81.0	132.8	89.24	-3,799.7	-92.0	403.5	189.8	213.73	1.888		
10,800.0	6,693.2	6,638.2	6,638.2	82.9	132.8	89.01	-3,799.7	-92.0	488.4	272.8	215.58	2.265		
10,900.0	6,692.3	6,637.3	6,637.3	84.8	132.7	88.78	-3,799.7	-92.0	578.1	360.7	217.44	2.659		
11,000.0	6,691.4	6,636.4	6,636.4	86.7	132.7	88.55	-3,799.7	-92.0	670.8	451.5	219.29	3.059		
11,100.0	6,690.4	6,635.4	6,635.4	88.6	132.7	88.32	-3,799.7	-92.0	765.3	544.1	221.14	3.461		
11,143.7	6,690.0	6,635.0	6,635.0	89.2	132.7	88.22	-3,799.7	-92.0	807.0	585.2	221.79	3.639		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 6965-UNKNOWN													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Warning								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	132.87	-455.4	490.5	669.3					
100.0	100.0	96.0	96.0	0.1	1.9	132.87	-455.4	490.5	669.3	667.2	2.03	329.276		
200.0	200.0	196.0	196.0	0.3	3.9	132.87	-455.4	490.5	669.3	665.0	4.26	157.206		
300.0	300.0	296.0	296.0	0.6	5.9	132.87	-455.4	490.5	669.3	662.8	6.48	103.250		
400.0	400.0	396.0	396.0	0.8	7.9	132.87	-455.4	490.5	669.3	660.6	8.71	76.868		
500.0	500.0	496.0	496.0	1.0	9.9	132.87	-455.4	490.5	669.3	658.3	10.93	61.224		
600.0	600.0	596.0	596.0	1.2	11.9	132.87	-455.4	490.5	669.3	656.1	13.16	50.871		
700.0	700.0	696.0	696.0	1.5	13.9	132.87	-455.4	490.5	669.3	653.9	15.38	43.513		
800.0	800.0	796.0	796.0	1.7	15.9	132.87	-455.4	490.5	669.3	651.7	17.61	38.014		
900.0	900.0	896.0	896.0	1.9	17.9	132.87	-455.4	490.5	669.3	649.4	19.83	33.750		
1,000.0	1,000.0	996.0	996.0	2.1	19.9	132.87	-455.4	490.5	669.3	647.2	22.06	30.345		
1,100.0	1,100.0	1,096.0	1,096.0	2.4	21.9	132.87	-455.4	490.5	669.3	645.0	24.28	27.565		
1,200.0	1,200.0	1,196.0	1,196.0	2.6	23.9	132.87	-455.4	490.5	669.3	642.8	26.50	25.251		
1,300.0	1,300.0	1,296.0	1,296.0	2.8	25.9	132.87	-455.4	490.5	669.3	640.6	28.73	23.296		
1,400.0	1,400.0	1,396.0	1,396.0	3.0	27.9	132.87	-455.4	490.5	669.3	638.3	30.95	21.621		
1,500.0	1,500.0	1,496.0	1,496.0	3.3	29.9	132.87	-455.4	490.5	669.3	636.1	33.18	20.172		
1,600.0	1,600.0	1,596.0	1,596.0	3.5	31.9	132.87	-455.4	490.5	669.3	633.9	35.40	18.904		
1,700.0	1,700.0	1,696.0	1,696.0	3.7	33.9	132.87	-455.4	490.5	669.3	631.7	37.63	17.786		
1,800.0	1,800.0	1,796.0	1,796.0	3.9	35.9	132.87	-455.4	490.5	669.3	629.4	39.85	16.793		
1,900.0	1,900.0	1,896.0	1,896.0	4.2	37.9	132.87	-455.4	490.5	669.3	627.2	42.08	15.906		
2,000.0	2,000.0	1,996.0	1,996.0	4.4	39.9	132.87	-455.4	490.5	669.3	625.0	44.30	15.107		
2,100.0	2,100.0	2,096.0	2,096.0	4.6	41.9	132.87	-455.4	490.5	669.3	622.8	46.53	14.385		
2,200.0	2,200.0	2,196.0	2,196.0	4.8	43.9	132.87	-455.4	490.5	669.3	620.5	48.75	13.728		
2,300.0	2,300.0	2,296.0	2,296.0	5.1	45.9	132.87	-455.4	490.5	669.3	618.3	50.98	13.129		
2,400.0	2,400.0	2,396.0	2,396.0	5.3	47.9	132.87	-455.4	490.5	669.3	616.1	53.20	12.580		
2,500.0	2,500.0	2,496.0	2,496.0	5.5	49.9	132.87	-455.4	490.5	669.3	613.9	55.43	12.075		
2,600.0	2,600.0	2,596.0	2,596.0	5.7	51.9	91.75	-455.4	490.5	669.3	611.7	57.65	11.611		
2,700.0	2,699.8	2,695.8	2,695.8	5.9	53.9	92.19	-455.4	490.5	669.5	609.6	59.86	11.184		
2,800.0	2,799.5	2,795.5	2,795.5	6.2	55.9	92.92	-455.4	490.5	669.9	607.8	62.08	10.792		
2,900.0	2,899.0	2,895.0	2,895.0	6.4	57.9	93.74	-455.4	490.5	670.5	606.2	64.29	10.428		
3,000.0	2,998.5	2,994.5	2,994.5	6.6	59.9	94.56	-455.4	490.5	671.2	604.6	66.51	10.090		
3,100.0	3,098.1	3,094.1	3,094.1	6.9	61.9	95.37	-455.4	490.5	672.0	603.3	68.74	9.776		
3,200.0	3,197.6	3,193.6	3,193.6	7.1	63.9	96.19	-455.4	490.5	673.0	602.0	70.97	9.483		
3,300.0	3,297.1	3,293.1	3,293.1	7.3	65.9	97.00	-455.4	490.5	674.1	600.9	73.20	9.209		
3,400.0	3,396.7	3,392.7	3,392.7	7.6	67.9	97.81	-455.4	490.5	675.3	599.9	75.44	8.953		
3,500.0	3,496.2	3,492.2	3,492.2	7.8	69.8	98.62	-455.4	490.5	676.7	599.1	77.67	8.712		
3,600.0	3,595.7	3,591.7	3,591.7	8.1	71.8	99.42	-455.4	490.5	678.2	598.3	79.91	8.487		
3,700.0	3,695.3	3,691.3	3,691.3	8.3	73.8	100.22	-455.4	490.5	679.9	597.7	82.15	8.276		
3,800.0	3,794.8	3,790.8	3,790.8	8.6	75.8	101.01	-455.4	490.5	681.7	597.3	84.40	8.077		
3,900.0	3,894.3	3,890.3	3,890.3	8.9	77.8	101.80	-455.4	490.5	683.6	597.0	86.64	7.890		
4,000.0	3,993.9	3,989.9	3,989.9	9.1	79.8	102.59	-455.4	490.5	685.7	596.8	88.89	7.714		
4,100.0	4,093.4	4,089.4	4,089.4	9.4	81.8	103.37	-455.4	490.5	687.8	596.7	91.13	7.548		
4,200.0	4,192.9	4,188.9	4,188.9	9.6	83.8	104.15	-455.4	490.5	690.1	596.8	93.38	7.391		
4,300.0	4,292.5	4,288.5	4,288.5	9.9	85.8	104.92	-455.4	490.5	692.6	596.9	95.63	7.242		
4,400.0	4,392.0	4,388.0	4,388.0	10.2	87.8	105.68	-455.4	490.5	695.1	597.2	97.88	7.102		
4,500.0	4,491.5	4,487.5	4,487.5	10.4	89.8	106.44	-455.4	490.5	697.8	597.7	100.12	6.969		
4,600.0	4,591.1	4,587.1	4,587.1	10.7	91.7	107.20	-455.4	490.5	700.6	598.2	102.37	6.844		
4,700.0	4,690.6	4,686.6	4,686.6	11.0	93.7	107.94	-455.4	490.5	703.5	598.9	104.62	6.725		
4,800.0	4,790.2	4,786.2	4,786.2	11.2	95.7	108.66	-455.4	490.5	706.3	599.5	106.87	6.609		
4,900.0	4,890.0	4,886.0	4,886.0	11.4	97.7	109.12	-455.4	490.5	708.1	599.1	109.07	6.492		
5,000.0	4,990.0	4,986.0	4,986.0	11.6	99.7	109.29	-455.4	490.5	708.8	597.6	111.25	6.371		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Suden (Existing) Pad Sec.34-T5N-R64W - Gamewell 34-3 (Existing) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft
Survey Program: 6965-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)						
5,100.0	5,090.0	5,086.0	5,086.0	11.8	101.7	150.57	-455.4	490.5	708.8	595.4	113.44	6.249					
5,200.0	5,190.0	5,186.0	5,186.0	12.0	103.7	150.57	-455.4	490.5	708.8	593.2	115.65	6.129					
5,300.0	5,290.0	5,286.0	5,286.0	12.2	105.7	150.57	-455.4	490.5	708.8	591.0	117.86	6.014					
5,400.0	5,390.0	5,386.0	5,386.0	12.4	107.7	150.57	-455.4	490.5	708.8	588.8	120.08	5.903					
5,500.0	5,490.0	5,486.0	5,486.0	12.6	109.7	150.57	-455.4	490.5	708.8	586.5	122.29	5.796					
5,600.0	5,590.0	5,586.0	5,586.0	12.8	111.7	150.57	-455.4	490.5	708.8	584.3	124.50	5.693					
5,700.0	5,690.0	5,686.0	5,686.0	13.0	113.7	150.57	-455.4	490.5	708.8	582.1	126.72	5.594					
5,800.0	5,790.0	5,786.0	5,786.0	13.2	115.7	150.57	-455.4	490.5	708.8	579.9	128.93	5.498					
5,900.0	5,890.0	5,886.0	5,886.0	13.5	117.7	150.57	-455.4	490.5	708.8	577.7	131.14	5.405					
6,000.0	5,990.0	5,986.0	5,986.0	13.7	119.7	-29.46	-455.4	490.5	708.4	575.1	133.29	5.315					
6,100.0	6,089.4	6,085.4	6,085.4	13.8	121.7	-30.19	-455.4	490.5	699.7	565.6	134.11	5.218					
6,200.0	6,186.7	6,182.7	6,182.7	13.9	123.7	-31.95	-455.4	490.5	680.0	546.7	133.31	5.101					
6,300.0	6,280.1	6,276.1	6,276.1	14.0	125.5	-34.90	-455.4	490.5	649.8	518.5	131.33	4.948					
6,400.0	6,368.2	6,364.2	6,364.2	14.1	127.3	-39.32	-455.4	490.5	610.4	481.3	129.15	4.727					
6,500.0	6,449.3	6,445.3	6,445.3	14.2	128.9	-45.53	-455.4	490.5	563.5	435.1	128.36	4.390					
6,600.0	6,522.1	6,518.1	6,518.1	14.3	130.4	-53.74	-455.4	490.5	511.4	380.7	130.72	3.912					
6,700.0	6,585.3	6,581.3	6,581.3	14.7	131.6	-63.64	-455.4	490.5	457.8	321.2	136.58	3.352					
6,800.0	6,637.9	6,633.9	6,633.9	15.3	132.7	-74.04	-455.4	490.5	407.8	264.3	143.52	2.841					
6,900.0	6,679.0	6,675.0	6,675.0	16.0	133.5	-83.06	-455.4	490.5	368.7	220.3	148.47	2.483					
7,000.0	6,707.8	6,703.8	6,703.8	16.9	134.1	-89.06	-455.4	490.5	349.2	198.3	150.87	2.315					
7,025.9	6,713.2	6,709.2	6,709.2	17.2	134.2	-90.00	-455.4	490.5	348.3	197.0	151.28	2.302 CC, ES, SF					
7,100.0	6,723.9	6,719.9	6,719.9	18.0	134.4	-91.16	-455.4	490.5	355.9	203.7	152.24	2.338					
7,200.0	6,727.2	6,723.2	6,723.2	19.2	134.5	-89.73	-455.4	490.5	388.9	235.4	153.54	2.533					
7,300.0	6,726.2	6,722.2	6,722.2	20.5	134.4	-89.58	-455.4	490.5	442.6	287.8	154.83	2.859					
7,400.0	6,725.3	6,721.3	6,721.3	21.9	134.4	-89.42	-455.4	490.5	510.4	354.2	156.20	3.268					
7,500.0	6,724.3	6,720.3	6,720.3	23.3	134.4	-89.27	-455.4	490.5	587.5	429.8	157.65	3.727					
7,600.0	6,723.4	6,719.4	6,719.4	24.9	134.4	-89.11	-455.4	490.5	670.6	511.5	159.16	4.214					
7,700.0	6,722.5	6,718.5	6,718.5	26.4	134.4	-88.96	-455.4	490.5	757.9	597.2	160.72	4.716					
7,800.0	6,721.5	6,717.5	6,717.5	28.1	134.4	-88.80	-455.4	490.5	847.9	685.6	162.32	5.224					
7,900.0	6,720.6	6,716.6	6,716.6	29.7	134.3	-88.65	-455.4	490.5	940.0	776.1	163.95	5.733					

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design      Suden (Existing) Pad Sec.34-T5N-R64W - Gamewell 34-4 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6988-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)			
7,400.0	6,725.3	6,721.3	6,721.3	21.9	134.0	-91.32	-1,726.8	510.0	970.7	815.0	155.74	6.233		
7,500.0	6,724.3	6,720.3	6,720.3	23.3	134.0	-91.17	-1,726.8	510.0	879.0	721.8	157.20	5.592		
7,600.0	6,723.4	6,719.4	6,719.4	24.9	134.0	-91.03	-1,726.8	510.0	789.3	630.6	158.72	4.973		
7,700.0	6,722.5	6,718.5	6,718.5	26.4	133.9	-90.88	-1,726.8	510.0	702.4	542.1	160.29	4.382		
7,800.0	6,721.5	6,717.5	6,717.5	28.1	133.9	-90.73	-1,726.8	510.0	619.4	457.5	161.91	3.826		
7,900.0	6,720.6	6,716.6	6,716.6	29.7	133.9	-90.58	-1,726.8	510.0	542.2	378.6	163.55	3.315		
8,000.0	6,719.6	6,715.6	6,715.6	31.4	133.9	-90.44	-1,726.8	510.0	473.6	308.4	165.23	2.866		
8,100.0	6,718.7	6,714.7	6,714.7	33.1	133.9	-90.29	-1,726.8	510.0	417.9	251.0	166.93	2.503		
8,200.0	6,717.7	6,713.7	6,713.7	34.9	133.9	-90.14	-1,726.8	510.0	380.8	212.1	168.65	2.258		
8,298.4	6,716.8	6,712.8	6,712.8	36.6	133.8	-90.00	-1,726.8	510.0	367.8	197.5	170.36	2.159 CC		
8,300.0	6,716.8	6,712.8	6,712.8	36.6	133.8	-90.00	-1,726.8	510.0	367.8	197.4	170.39	2.159 ES, SF		
8,400.0	6,715.9	6,711.9	6,711.9	38.4	133.8	-89.85	-1,726.8	510.0	381.6	209.5	172.14	2.217		
8,500.0	6,714.9	6,710.9	6,710.9	40.2	133.8	-89.70	-1,726.8	510.0	419.5	245.6	173.91	2.412		
8,600.0	6,714.0	6,710.0	6,710.0	42.0	133.8	-89.56	-1,726.8	510.0	475.7	300.0	175.69	2.708		
8,700.0	6,713.0	6,709.0	6,709.0	43.8	133.8	-89.41	-1,726.8	510.0	544.6	367.1	177.47	3.069		
8,800.0	6,712.1	6,708.1	6,708.1	45.6	133.7	-89.26	-1,726.8	510.0	622.0	442.8	179.27	3.470		
8,900.0	6,711.1	6,707.1	6,707.1	47.4	133.7	-89.12	-1,726.8	510.0	705.2	524.1	181.07	3.894		
9,000.0	6,710.2	6,706.2	6,706.2	49.2	133.7	-88.97	-1,726.8	510.0	792.2	609.3	182.87	4.332		
9,100.0	6,709.3	6,705.3	6,705.3	51.1	133.7	-88.82	-1,726.8	510.0	882.0	697.3	184.69	4.776		
9,200.0	6,708.3	6,704.3	6,704.3	52.9	133.7	-88.68	-1,726.8	510.0	973.8	787.2	186.50	5.221		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Suden (Existing) Pad Sec.34-T5N-R64W - Gamewell 5 (Existing) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 6970-UNKNOWN												<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,800.0	6,637.9	6,632.9	6,632.9	15.3	132.7	34.94	-1,118.4	-144.9	921.1	818.1	103.00	8.943	
6,900.0	6,679.0	6,674.0	6,674.0	16.0	133.5	46.26	-1,118.4	-144.9	835.0	720.5	114.57	7.288	
7,000.0	6,707.8	6,702.8	6,702.8	16.9	134.1	61.64	-1,118.4	-144.9	745.9	611.9	134.04	5.565	
7,100.0	6,723.9	6,718.9	6,718.9	18.0	134.4	78.85	-1,118.4	-144.9	656.0	506.6	149.41	4.390	
7,200.0	6,727.2	6,722.2	6,722.2	19.2	134.4	90.92	-1,118.4	-144.9	567.8	414.3	153.51	3.699	
7,300.0	6,726.2	6,721.2	6,721.2	20.5	134.4	90.73	-1,118.4	-144.9	484.2	329.4	154.80	3.128	
7,400.0	6,725.3	6,720.3	6,720.3	21.9	134.4	90.55	-1,118.4	-144.9	408.0	251.8	156.18	2.612	
7,500.0	6,724.3	6,719.3	6,719.3	23.3	134.4	90.36	-1,118.4	-144.9	344.2	186.6	157.64	2.184	
7,600.0	6,723.4	6,718.4	6,718.4	24.9	134.4	90.17	-1,118.4	-144.9	300.9	141.7	159.15	1.890	
7,689.9	6,722.6	6,717.6	6,717.6	26.3	134.4	90.00	-1,118.4	-144.9	287.1	126.5	160.56	1.788 CC, ES	
7,700.0	6,722.5	6,717.5	6,717.5	26.4	134.3	89.98	-1,118.4	-144.9	287.3	126.6	160.72	1.787 SF	
7,800.0	6,721.5	6,716.5	6,716.5	28.1	134.3	89.79	-1,118.4	-144.9	307.5	145.2	162.32	1.894	
7,900.0	6,720.6	6,715.6	6,715.6	29.7	134.3	89.60	-1,118.4	-144.9	355.7	191.8	163.96	2.170	
8,000.0	6,719.6	6,714.6	6,714.6	31.4	134.3	89.42	-1,118.4	-144.9	422.6	256.9	165.62	2.551	
8,100.0	6,718.7	6,713.7	6,713.7	33.1	134.3	89.23	-1,118.4	-144.9	500.6	333.2	167.31	2.992	
8,200.0	6,717.7	6,712.7	6,712.7	34.9	134.3	89.04	-1,118.4	-144.9	585.3	416.3	169.02	3.463	
8,300.0	6,716.8	6,711.8	6,711.8	36.6	134.2	88.85	-1,118.4	-144.9	674.2	503.5	170.75	3.949	
8,400.0	6,715.9	6,710.9	6,710.9	38.4	134.2	88.66	-1,118.4	-144.9	765.9	593.4	172.49	4.440	
8,500.0	6,714.9	6,709.9	6,709.9	40.2	134.2	88.48	-1,118.4	-144.9	859.4	685.2	174.24	4.932	
8,600.0	6,714.0	6,709.0	6,709.0	42.0	134.2	88.29	-1,118.4	-144.9	954.2	778.2	176.00	5.422	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34R-423 - Wellbore #1 - Plan #1 (2-13-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	89.98	89.98	0.0	30.7	30.7	30.7	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	89.98	89.98	0.0	30.7	30.7	30.4	0.23	135.033	
200.0	200.0	201.0	201.0	0.3	0.3	89.98	89.98	0.0	30.7	30.7	30.0	0.68	45.310	
300.0	300.0	301.0	301.0	0.6	0.6	89.98	89.98	0.0	30.7	30.7	29.5	1.13	27.222	
400.0	400.0	401.0	401.0	0.8	0.8	89.98	89.98	0.0	30.7	30.7	29.1	1.58	19.456	
500.0	500.0	501.0	501.0	1.0	1.0	89.98	89.98	0.0	30.7	30.7	28.6	2.03	15.137	
600.0	600.0	601.0	601.0	1.2	1.2	89.98	89.98	0.0	30.7	30.7	28.2	2.47	12.387	
700.0	700.0	701.0	701.0	1.5	1.5	89.98	89.98	0.0	30.7	30.7	27.7	2.92	10.483	
800.0	800.0	801.0	801.0	1.7	1.7	89.98	89.98	0.0	30.7	30.7	27.3	3.37	9.086	
900.0	900.0	901.0	901.0	1.9	1.9	89.98	89.98	0.0	30.7	30.7	26.8	3.82	8.018	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	89.98	89.98	0.0	30.7	30.7	26.4	4.27	7.174	
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	89.98	89.98	0.0	30.7	30.7	25.9	4.72	6.491	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	89.98	89.98	0.0	30.7	30.7	25.5	5.17	5.927	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	89.98	89.98	0.0	30.7	30.7	25.0	5.62	5.453	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	89.98	89.98	0.0	30.7	30.7	24.6	6.07	5.049	
1,466.3	1,466.3	1,467.3	1,467.3	3.2	3.2	89.98	89.98	0.0	30.7	30.7	24.3	6.37	4.813 CC	
1,500.0	1,500.0	1,501.0	1,501.0	3.3	3.3	89.98	89.98	0.0	30.7	30.7	24.1	6.52	4.701 ES	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	88.71	88.71	0.7	32.2	32.3	25.3	6.96	4.636	
1,700.0	1,700.0	1,698.7	1,698.6	3.7	3.7	85.60	85.60	2.8	36.9	37.1	29.7	7.39	5.020	
1,800.0	1,800.0	1,797.0	1,796.5	3.9	3.9	81.94	81.94	6.3	44.7	45.4	37.5	7.83	5.789	
1,900.0	1,900.0	1,896.3	1,895.3	4.2	4.1	78.89	78.89	10.7	54.3	55.6	47.3	8.28	6.717	
2,000.0	2,000.0	1,995.8	1,994.1	4.4	4.4	76.80	76.80	15.0	63.9	66.0	57.3	8.73	7.560	
2,100.0	2,100.0	2,095.2	2,093.0	4.6	4.6	75.27	75.27	19.3	73.5	76.4	67.2	9.18	8.324	
2,200.0	2,200.0	2,194.7	2,191.9	4.8	4.9	74.11	74.11	23.7	83.1	86.9	77.3	9.64	9.017	
2,300.0	2,300.0	2,294.1	2,290.8	5.1	5.1	73.20	73.20	28.0	92.7	97.4	87.3	10.10	9.647	
2,400.0	2,400.0	2,393.5	2,389.6	5.3	5.4	72.47	72.47	32.3	102.4	107.9	97.4	10.56	10.221	
2,500.0	2,500.0	2,493.0	2,488.5	5.5	5.7	71.87	71.87	36.7	112.0	118.5	107.5	11.03	10.745	
2,600.0	2,600.0	2,592.5	2,587.5	5.7	5.9	30.39	30.39	41.0	121.6	127.5	116.2	11.36	11.223	
2,700.0	2,699.8	2,692.3	2,686.8	5.9	6.2	30.99	30.99	45.4	131.3	133.6	121.8	11.80	11.325	
2,800.0	2,799.5	2,792.2	2,786.1	6.2	6.5	32.32	32.32	49.7	140.9	136.8	124.6	12.23	11.187	
2,900.0	2,899.0	2,892.1	2,885.4	6.4	6.7	33.84	33.84	54.1	150.6	139.2	126.5	12.68	10.981	
3,000.0	2,998.5	2,992.0	2,984.8	6.6	7.0	35.31	35.31	58.4	160.2	141.7	128.6	13.13	10.793	
3,100.0	3,098.1	3,091.9	3,084.1	6.9	7.3	36.73	36.73	62.8	169.9	144.3	130.7	13.59	10.621	
3,200.0	3,197.6	3,191.9	3,183.5	7.1	7.6	38.10	38.10	67.1	179.6	147.0	132.9	14.05	10.462	
3,300.0	3,297.1	3,291.8	3,282.8	7.3	7.9	39.42	39.42	71.5	189.2	149.8	135.2	14.52	10.317	
3,400.0	3,396.7	3,391.7	3,382.1	7.6	8.1	40.69	40.69	75.8	198.9	152.6	137.6	14.99	10.182	
3,500.0	3,496.2	3,491.6	3,481.5	7.8	8.4	41.91	41.91	80.2	208.6	155.5	140.0	15.46	10.057	
3,600.0	3,595.7	3,591.5	3,580.8	8.1	8.7	43.09	43.09	84.6	218.2	158.5	142.5	15.94	9.941	
3,700.0	3,695.3	3,691.4	3,680.1	8.3	9.0	44.23	44.23	88.9	227.9	161.5	145.1	16.43	9.834	
3,800.0	3,794.8	3,791.3	3,779.5	8.6	9.3	45.32	45.32	93.3	237.5	164.6	147.7	16.91	9.734	
3,900.0	3,894.3	3,891.2	3,878.8	8.9	9.6	46.37	46.37	97.6	247.2	167.8	150.4	17.41	9.640	
4,000.0	3,993.9	3,991.1	3,978.2	9.1	9.9	47.38	47.38	102.0	256.9	171.0	153.1	17.90	9.553	
4,100.0	4,093.4	4,091.0	4,077.5	9.4	10.2	48.35	48.35	106.3	266.5	174.3	155.9	18.40	9.471	
4,200.0	4,192.9	4,190.9	4,176.8	9.6	10.4	49.29	49.29	110.7	276.2	177.6	158.7	18.90	9.394	
4,300.0	4,292.5	4,290.8	4,276.2	9.9	10.7	50.20	50.20	115.0	285.8	181.0	161.5	19.41	9.322	
4,400.0	4,392.0	4,390.7	4,375.5	10.2	11.0	51.07	51.07	119.4	295.5	184.4	164.4	19.92	9.254	
4,500.0	4,491.5	4,490.6	4,474.9	10.4	11.3	51.91	51.91	123.7	305.2	187.8	167.4	20.44	9.190	
4,600.0	4,591.1	4,590.5	4,574.2	10.7	11.6	52.71	52.71	128.1	314.8	191.3	170.3	20.95	9.130	
4,700.0	4,690.6	4,690.4	4,673.5	11.0	11.9	53.49	53.49	132.5	324.5	194.8	173.3	21.47	9.073	
4,800.0	4,790.2	4,790.3	4,772.9	11.2	12.2	54.11	54.11	136.8	334.2	198.8	176.9	21.97	9.050	
4,900.0	4,890.0	4,890.1	4,872.1	11.4	12.5	54.00	54.00	141.2	343.8	204.8	182.4	22.40	9.142	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34R-423 - Wellbore #1 - Plan #1 (2-13-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
5,000.0	4,990.0	4,989.7	4,971.2	11.6	12.8	53.17	145.5	353.4	212.8	190.0	22.79	9.340			
5,100.0	5,090.0	5,089.2	5,070.1	11.8	13.1	93.15	149.8	363.1	222.2	199.0	23.18	9.587			
5,200.0	5,190.0	5,188.6	5,168.9	12.0	13.4	91.94	154.2	372.7	231.7	208.1	23.59	9.819			
5,300.0	5,290.0	5,294.0	5,273.8	12.2	13.6	90.88	158.3	381.9	240.3	216.3	24.01	10.011			
5,400.0	5,390.0	5,402.1	5,381.8	12.4	13.8	90.23	161.0	387.8	245.8	221.4	24.41	10.071			
5,500.0	5,490.0	5,510.6	5,490.2	12.6	14.0	90.00	162.0	390.0	247.8	223.0	24.81	9.991			
5,600.0	5,590.0	5,611.4	5,591.0	12.8	14.2	90.00	162.0	390.1	247.9	222.6	25.21	9.830			
5,700.0	5,690.0	5,711.4	5,691.0	13.0	14.4	90.00	162.0	390.1	247.9	222.2	25.64	9.668			
5,800.0	5,790.0	5,811.4	5,791.0	13.2	14.6	90.00	162.0	390.1	247.9	221.8	26.06	9.511			
5,900.0	5,890.0	5,911.4	5,891.0	13.5	14.8	90.00	162.0	390.1	247.9	221.4	26.48	9.359			
5,961.4	5,951.4	5,972.8	5,952.4	13.6	14.9	-90.15	162.0	390.1	247.9	221.1	26.73	9.271			
6,000.0	5,990.0	6,011.4	5,991.0	13.7	15.0	-90.11	162.0	390.1	247.9	221.0	26.90	9.216			
6,100.0	6,089.4	6,111.4	6,091.0	13.8	15.1	-92.06	160.5	390.1	248.0	220.9	27.16	9.130			
6,200.0	6,186.7	6,212.8	6,191.4	13.9	15.3	-94.40	147.5	390.1	248.6	221.3	27.33	9.096			
6,300.0	6,280.1	6,315.5	6,290.6	14.0	15.4	-96.66	120.8	390.1	249.6	222.1	27.46	9.089			
6,400.0	6,368.2	6,419.7	6,386.5	14.1	15.4	-98.81	80.4	390.1	250.8	223.2	27.60	9.089			
6,500.0	6,449.3	6,525.3	6,477.2	14.2	15.5	-100.79	26.6	390.1	252.3	224.5	27.82	9.072			
6,600.0	6,522.1	6,632.1	6,560.6	14.3	15.7	-102.57	-40.1	390.1	254.0	225.8	28.17	9.015			
6,700.0	6,585.3	6,740.2	6,634.7	14.7	15.9	-104.12	-118.7	390.1	255.6	226.9	28.76	8.889			
6,800.0	6,637.9	6,849.4	6,697.5	15.3	16.2	-105.41	-207.9	390.1	257.1	227.5	29.62	8.681			
6,900.0	6,679.0	6,959.5	6,747.3	16.0	16.8	-106.41	-306.0	390.1	258.4	227.6	30.82	8.384			
7,000.0	6,707.8	7,070.3	6,782.7	16.9	17.7	-107.11	-410.9	390.1	259.3	227.0	32.37	8.013			
7,100.0	6,723.9	7,181.6	6,802.6	18.0	18.8	-107.50	-520.3	390.1	259.9	225.6	34.25	7.588			
7,200.0	6,727.2	7,283.4	6,812.9	19.2	19.9	-108.86	-621.5	390.1	262.0	225.9	36.13	7.253			
7,300.0	6,726.2	7,390.7	6,816.7	20.5	21.3	-109.86	-728.8	390.1	263.5	225.1	38.46	6.853			
7,400.0	6,725.3	7,490.7	6,816.4	21.9	22.6	-109.98	-828.8	390.1	263.7	222.7	41.05	6.425			
7,500.0	6,724.3	7,590.7	6,816.1	23.3	24.1	-110.11	-928.8	390.1	264.0	220.2	43.79	6.028			
7,600.0	6,723.4	7,690.7	6,815.7	24.9	25.5	-110.23	-1,028.8	390.1	264.2	217.5	46.64	5.664			
7,700.0	6,722.5	7,790.7	6,815.4	26.4	27.1	-110.36	-1,128.8	390.1	264.4	214.8	49.58	5.332			
7,800.0	6,721.5	7,890.7	6,815.1	28.1	28.7	-110.48	-1,228.8	390.1	264.6	212.0	52.61	5.029			
7,900.0	6,720.6	7,990.7	6,814.8	29.7	30.3	-110.60	-1,328.8	390.1	264.8	209.1	55.70	4.754			
8,000.0	6,719.6	8,090.7	6,814.4	31.4	32.0	-110.73	-1,428.8	390.1	265.0	206.2	58.84	4.504			
8,100.0	6,718.7	8,190.7	6,814.1	33.1	33.6	-110.85	-1,528.8	390.1	265.2	203.2	62.03	4.276			
8,200.0	6,717.7	8,290.7	6,813.8	34.9	35.4	-110.97	-1,628.8	390.1	265.5	200.2	65.25	4.068			
8,300.0	6,716.8	8,390.7	6,813.4	36.6	37.1	-111.10	-1,728.8	390.1	265.7	197.2	68.51	3.878			
8,400.0	6,715.9	8,490.7	6,813.1	38.4	38.8	-111.22	-1,828.8	390.1	265.9	194.1	71.79	3.704			
8,500.0	6,714.9	8,590.7	6,812.8	40.2	40.6	-111.34	-1,928.8	390.1	266.1	191.0	75.09	3.544			
8,600.0	6,714.0	8,690.7	6,812.4	42.0	42.4	-111.46	-2,028.8	390.1	266.3	187.9	78.41	3.397			
8,700.0	6,713.0	8,790.7	6,812.1	43.8	44.2	-111.59	-2,128.8	390.1	266.6	184.8	81.74	3.261			
8,800.0	6,712.1	8,890.7	6,811.8	45.6	46.0	-111.71	-2,228.8	390.1	266.8	181.7	85.09	3.135			
8,900.0	6,711.1	8,990.7	6,811.4	47.4	47.8	-111.83	-2,328.8	390.1	267.0	178.6	88.45	3.019			
9,000.0	6,710.2	9,090.7	6,811.1	49.2	49.6	-111.95	-2,428.8	390.1	267.3	175.4	91.82	2.911			
9,100.0	6,709.3	9,190.7	6,810.8	51.1	51.4	-112.07	-2,528.8	390.1	267.5	172.3	95.20	2.810			
9,200.0	6,708.3	9,290.7	6,810.4	52.9	53.2	-112.19	-2,628.8	390.1	267.7	169.1	98.58	2.716			
9,300.0	6,707.4	9,390.7	6,810.1	54.8	55.1	-112.31	-2,728.8	390.1	267.9	166.0	101.97	2.628			
9,400.0	6,706.4	9,490.7	6,809.8	56.6	56.9	-112.43	-2,828.7	390.1	268.2	162.8	105.36	2.545			
9,500.0	6,705.5	9,590.7	6,809.4	58.5	58.8	-112.55	-2,928.7	390.1	268.4	159.7	108.75	2.468			
9,600.0	6,704.5	9,690.7	6,809.1	60.3	60.6	-112.68	-3,028.7	390.1	268.7	156.5	112.15	2.396			
9,700.0	6,703.6	9,790.7	6,808.8	62.2	62.5	-112.80	-3,128.7	390.1	268.9	153.3	115.54	2.327			
9,800.0	6,702.7	9,890.7	6,808.5	64.1	64.3	-112.92	-3,228.7	390.1	269.1	150.2	118.94	2.263			
9,900.0	6,701.7	9,990.7	6,808.1	65.9	66.2	-113.03	-3,328.7	390.1	269.4	147.0	122.34	2.202			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design      Suden 34U-HZ Pad Sec.34-T5N-R64W -   Suden 34R-423 - Wellbore #1 - Plan #1 (2-13-14)													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	6,700.8	10,090.7	6,807.8	67.8	68.1	-113.15	-3,428.7	390.1	269.6	143.9	125.74	2.144		
10,100.0	6,699.8	10,190.7	6,807.5	69.7	69.9	-113.27	-3,528.7	390.1	269.9	140.7	129.13	2.090		
10,200.0	6,698.9	10,290.7	6,807.1	71.6	71.8	-113.39	-3,628.7	390.1	270.1	137.6	132.53	2.038		
10,300.0	6,698.0	10,390.7	6,806.8	73.5	73.7	-113.51	-3,728.7	390.1	270.3	134.4	135.92	1.989		
10,400.0	6,697.0	10,490.7	6,806.5	75.3	75.6	-113.63	-3,828.7	390.1	270.6	131.3	139.32	1.942		
10,500.0	6,696.1	10,590.7	6,806.1	77.2	77.4	-113.75	-3,928.7	390.1	270.8	128.1	142.71	1.898		
10,600.0	6,695.1	10,690.7	6,805.8	79.1	79.3	-113.87	-4,028.7	390.1	271.1	125.0	146.09	1.855		
10,700.0	6,694.2	10,790.7	6,805.5	81.0	81.2	-113.98	-4,128.7	390.1	271.3	121.8	149.48	1.815		
10,800.0	6,693.2	10,890.7	6,805.1	82.9	83.1	-114.10	-4,228.7	390.1	271.6	118.7	152.86	1.777		
10,900.0	6,692.3	10,990.7	6,804.8	84.8	85.0	-114.22	-4,328.7	390.1	271.8	115.6	156.24	1.740		
11,000.0	6,691.4	11,090.7	6,804.5	86.7	86.9	-114.34	-4,428.7	390.1	272.1	112.5	159.62	1.705		
11,100.0	6,690.4	11,190.7	6,804.1	88.6	88.8	-114.45	-4,528.7	390.1	272.3	109.3	162.99	1.671		
11,143.7	6,690.0	11,234.0	6,804.0	89.2	89.6	-114.50	-4,572.1	390.1	272.4	108.1	164.31	1.658 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-243 - Wellbore #1 - Plan #1 (2-13-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	1.0	1.0	0.0	0.0	89.99	0.0	61.3	61.3	61.3	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	89.99	0.0	61.3	61.3	61.1	0.23	270.067		
200.0	200.0	201.0	201.0	0.3	0.3	89.99	0.0	61.3	61.3	60.6	0.68	90.620		
300.0	300.0	301.0	301.0	0.6	0.6	89.99	0.0	61.3	61.3	60.2	1.13	54.445		
400.0	400.0	401.0	401.0	0.8	0.8	89.99	0.0	61.3	61.3	59.7	1.58	38.911		
500.0	500.0	501.0	501.0	1.0	1.0	89.99	0.0	61.3	61.3	59.3	2.03	30.274		
600.0	600.0	601.0	601.0	1.2	1.2	89.99	0.0	61.3	61.3	58.8	2.47	24.774		
700.0	700.0	701.0	701.0	1.5	1.5	89.99	0.0	61.3	61.3	58.4	2.92	20.966		
800.0	800.0	801.0	801.0	1.7	1.7	89.99	0.0	61.3	61.3	57.9	3.37	18.172		
900.0	900.0	901.0	901.0	1.9	1.9	89.99	0.0	61.3	61.3	57.5	3.82	16.036		
966.3	966.3	967.3	967.3	2.1	2.1	89.99	0.0	61.3	61.3	57.2	4.12	14.876 CC		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.99	0.0	61.3	61.3	57.0	4.27	14.358 ES		
1,100.0	1,100.0	1,098.9	1,098.9	2.4	2.3	89.66	0.4	63.0	63.0	58.3	4.71	13.385		
1,200.0	1,200.0	1,196.6	1,196.4	2.6	2.6	88.78	1.4	67.9	68.1	62.9	5.14	13.248		
1,300.0	1,300.0	1,293.8	1,293.3	2.8	2.8	87.57	3.2	76.0	76.5	70.9	5.57	13.718		
1,400.0	1,400.0	1,390.4	1,389.1	3.0	3.0	86.28	5.7	87.3	88.2	82.2	6.02	14.656		
1,500.0	1,500.0	1,486.0	1,483.7	3.3	3.3	85.05	8.8	101.5	103.3	96.9	6.48	15.952		
1,600.0	1,600.0	1,583.4	1,579.6	3.5	3.6	83.98	12.5	118.3	120.9	114.0	6.95	17.392		
1,700.0	1,700.0	1,681.8	1,676.4	3.7	3.9	83.17	16.2	135.5	138.7	131.2	7.44	18.645		
1,800.0	1,800.0	1,780.2	1,773.2	3.9	4.2	82.55	20.0	152.6	156.4	148.5	7.93	19.724		
1,900.0	1,900.0	1,878.6	1,870.0	4.2	4.5	82.05	23.7	169.8	174.2	165.8	8.43	20.658		
2,000.0	2,000.0	1,977.0	1,966.8	4.4	4.9	81.64	27.5	187.0	192.0	183.1	8.94	21.473		
2,100.0	2,100.0	2,075.4	2,063.6	4.6	5.3	81.31	31.2	204.1	209.8	200.4	9.46	22.187		
2,200.0	2,200.0	2,173.8	2,160.4	4.8	5.6	81.02	35.0	221.3	227.6	217.7	9.98	22.818		
2,300.0	2,300.0	2,272.2	2,257.3	5.1	6.0	80.78	38.7	238.4	245.5	235.0	10.50	23.378		
2,400.0	2,400.0	2,370.6	2,354.1	5.3	6.4	80.57	42.5	255.6	263.3	252.3	11.03	23.878		
2,500.0	2,500.0	2,469.0	2,450.9	5.5	6.7	80.38	46.2	272.7	281.1	269.6	11.56	24.327		
2,600.0	2,600.0	2,567.6	2,547.9	5.7	7.1	38.95	50.0	289.9	297.6	286.1	11.45	25.997		
2,700.0	2,699.8	2,666.6	2,645.4	5.9	7.5	39.23	53.7	307.2	311.4	299.5	11.91	26.155		
2,800.0	2,799.5	2,765.9	2,743.0	6.2	7.9	39.92	57.5	324.5	322.7	310.3	12.37	26.094		
2,900.0	2,899.0	2,865.2	2,840.8	6.4	8.3	40.79	61.3	341.8	333.2	320.3	12.83	25.963		
3,000.0	2,998.5	2,964.5	2,938.5	6.6	8.7	41.60	65.1	359.1	343.8	330.5	13.31	25.837		
3,100.0	3,098.1	3,063.8	3,036.2	6.9	9.1	42.36	68.9	376.4	354.4	340.7	13.78	25.716		
3,200.0	3,197.6	3,163.2	3,133.9	7.1	9.4	43.08	72.6	393.7	365.2	350.9	14.26	25.600		
3,300.0	3,297.1	3,262.5	3,231.7	7.3	9.8	43.76	76.4	411.1	375.9	361.2	14.75	25.487		
3,400.0	3,396.7	3,361.8	3,329.4	7.6	10.2	44.40	80.2	428.4	386.8	371.5	15.24	25.379		
3,500.0	3,496.2	3,461.1	3,427.1	7.8	10.6	45.01	84.0	445.7	397.6	381.9	15.73	25.274		
3,600.0	3,595.7	3,560.4	3,524.8	8.1	11.0	45.58	87.8	463.0	408.5	392.3	16.23	25.173		
3,700.0	3,695.3	3,659.8	3,622.6	8.3	11.4	46.13	91.6	480.3	419.5	402.8	16.73	25.075		
3,800.0	3,794.8	3,759.1	3,720.3	8.6	11.8	46.64	95.3	497.6	430.5	413.2	17.23	24.980		
3,900.0	3,894.3	3,858.4	3,818.0	8.9	12.2	47.13	99.1	514.9	441.5	423.8	17.74	24.888		
4,000.0	3,993.9	3,957.7	3,915.8	9.1	12.6	47.60	102.9	532.3	452.5	434.3	18.25	24.799		
4,100.0	4,093.4	4,057.1	4,013.5	9.4	13.0	48.04	106.7	549.6	463.6	444.9	18.76	24.713		
4,200.0	4,192.9	4,156.4	4,111.2	9.6	13.4	48.47	110.5	566.9	474.7	455.4	19.27	24.630		
4,300.0	4,292.5	4,255.7	4,208.9	9.9	13.8	48.87	114.3	584.2	485.8	466.1	19.79	24.549		
4,400.0	4,392.0	4,355.0	4,306.7	10.2	14.2	49.26	118.0	601.5	497.0	476.7	20.31	24.471		
4,500.0	4,491.5	4,454.3	4,404.4	10.4	14.6	49.63	121.8	618.8	508.2	487.3	20.83	24.395		
4,600.0	4,591.1	4,553.7	4,502.1	10.7	15.0	49.98	125.6	636.1	519.4	498.0	21.35	24.321		
4,700.0	4,690.6	4,653.0	4,599.9	11.0	15.4	50.32	129.4	653.5	530.6	508.7	21.88	24.250		
4,800.0	4,790.2	4,752.3	4,697.5	11.2	15.8	50.70	133.2	670.8	542.3	519.9	22.38	24.229		
4,900.0	4,890.0	4,851.3	4,795.0	11.4	16.2	50.90	136.9	688.0	556.1	533.3	22.82	24.366		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-243 - Wellbore #1 - Plan #1 (2-13-14)											Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,000.0	4,990.0	4,950.0	4,892.1	11.6	16.6	50.86	140.7	705.2	572.1	548.8	23.23	24.629		
5,100.0	5,090.0	5,048.4	4,988.9	11.8	17.0	91.73	144.5	722.4	589.4	565.7	23.65	24.920		
5,200.0	5,190.0	5,146.8	5,085.7	12.0	17.4	91.32	148.2	739.5	606.7	582.6	24.10	25.176		
5,300.0	5,290.0	5,245.2	5,182.5	12.2	17.8	90.94	152.0	756.7	624.1	599.5	24.55	25.422		
5,400.0	5,390.0	5,369.2	5,305.0	12.4	18.2	90.53	156.2	776.0	639.6	614.6	25.02	25.568		
5,500.0	5,490.0	5,496.5	5,431.4	12.6	18.5	90.24	159.3	790.4	650.9	625.5	25.47	25.556		
5,600.0	5,590.0	5,624.9	5,559.5	12.8	18.7	90.06	161.3	799.4	657.9	632.0	25.91	25.388		
5,700.0	5,690.0	5,753.9	5,688.4	13.0	18.9	90.00	162.0	802.7	660.5	634.2	26.35	25.066		
5,800.0	5,790.0	5,856.5	5,791.0	13.2	19.1	90.00	162.0	802.7	660.5	633.8	26.76	24.687		
5,900.0	5,890.0	5,956.5	5,891.0	13.5	19.2	90.00	162.0	802.7	660.5	633.4	27.16	24.318		
5,904.7	5,894.7	5,961.2	5,895.7	13.5	19.2	-90.00	162.0	802.7	660.5	633.3	27.18	24.302		
6,000.0	5,990.0	6,056.0	5,990.2	13.7	19.3	-89.49	155.7	802.7	660.6	633.0	27.55	23.977		
6,100.0	6,089.4	6,154.2	6,086.6	13.8	19.4	-88.69	136.9	802.7	660.7	632.9	27.83	23.738		
6,200.0	6,186.7	6,251.3	6,178.6	13.9	19.5	-87.91	106.3	802.7	661.0	632.9	28.04	23.568		
6,300.0	6,280.1	6,347.4	6,265.2	14.0	19.5	-87.18	64.7	802.7	661.3	633.1	28.23	23.431		
6,400.0	6,368.2	6,442.5	6,345.1	14.1	19.6	-86.49	13.2	802.7	661.8	633.3	28.43	23.274		
6,500.0	6,449.3	6,536.7	6,417.4	14.2	19.7	-85.86	-47.2	802.7	662.3	633.5	28.75	23.034		
6,600.0	6,522.1	6,630.3	6,481.2	14.3	19.8	-85.30	-115.5	802.7	662.8	633.5	29.25	22.656		
6,700.0	6,585.3	6,723.2	6,535.8	14.7	20.1	-84.82	-190.5	802.7	663.2	633.2	30.02	22.095		
6,800.0	6,637.9	6,815.5	6,580.8	15.3	20.4	-84.43	-271.1	802.7	663.7	632.6	31.10	21.337		
6,900.0	6,679.0	6,907.5	6,615.5	16.0	20.8	-84.12	-356.2	802.7	664.0	631.5	32.54	20.406		
7,000.0	6,707.8	7,000.0	6,639.9	16.9	21.4	-83.90	-445.4	802.7	664.3	630.0	34.34	19.346		
7,100.0	6,723.9	7,090.5	6,653.1	18.0	22.1	-83.78	-534.9	802.7	664.4	628.0	36.44	18.236		
7,200.0	6,727.2	7,183.7	6,655.9	19.2	22.9	-83.76	-628.0	802.7	664.5	625.7	38.79	17.128		
7,300.0	6,726.2	7,283.7	6,655.2	20.5	24.0	-83.78	-728.0	802.7	664.5	623.1	41.37	16.062		
7,400.0	6,725.3	7,383.7	6,654.4	21.9	25.2	-83.79	-828.0	802.7	664.4	620.3	44.12	15.060		
7,500.0	6,724.3	7,483.7	6,653.7	23.3	26.4	-83.81	-928.0	802.7	664.4	617.4	47.02	14.130		
7,600.0	6,723.4	7,583.7	6,653.0	24.9	27.8	-83.83	-1,028.0	802.7	664.4	614.3	50.05	13.276		
7,700.0	6,722.5	7,683.7	6,652.2	26.4	29.2	-83.85	-1,128.0	802.7	664.4	611.2	53.17	12.494		
7,800.0	6,721.5	7,783.7	6,651.5	28.1	30.7	-83.86	-1,228.0	802.7	664.3	608.0	56.39	11.782		
7,900.0	6,720.6	7,883.7	6,650.8	29.7	32.2	-83.88	-1,328.0	802.7	664.3	604.7	59.67	11.133		
8,000.0	6,719.6	7,983.7	6,650.0	31.4	33.8	-83.90	-1,428.0	802.7	664.3	601.3	63.02	10.541		
8,100.0	6,718.7	8,083.7	6,649.3	33.1	35.3	-83.92	-1,528.0	802.7	664.3	597.9	66.42	10.001		
8,200.0	6,717.7	8,183.7	6,648.6	34.9	37.0	-83.94	-1,627.9	802.7	664.3	594.4	69.86	9.508		
8,300.0	6,716.8	8,283.7	6,647.8	36.6	38.6	-83.95	-1,727.9	802.7	664.2	590.9	73.34	9.057		
8,400.0	6,715.9	8,383.7	6,647.1	38.4	40.3	-83.97	-1,827.9	802.7	664.2	587.4	76.86	8.642		
8,500.0	6,714.9	8,483.7	6,646.4	40.2	42.0	-83.99	-1,927.9	802.7	664.2	583.8	80.40	8.261		
8,600.0	6,714.0	8,583.7	6,645.6	42.0	43.7	-84.01	-2,027.9	802.7	664.2	580.2	83.96	7.910		
8,700.0	6,713.0	8,683.7	6,644.9	43.8	45.5	-84.03	-2,127.9	802.7	664.2	576.6	87.55	7.586		
8,800.0	6,712.1	8,783.7	6,644.2	45.6	47.2	-84.04	-2,227.9	802.7	664.1	573.0	91.16	7.285		
8,900.0	6,711.1	8,883.7	6,643.5	47.4	49.0	-84.06	-2,327.9	802.7	664.1	569.3	94.79	7.006		
9,000.0	6,710.2	8,983.7	6,642.7	49.2	50.8	-84.08	-2,427.9	802.7	664.1	565.7	98.43	6.747		
9,100.0	6,709.3	9,083.7	6,642.0	51.1	52.5	-84.10	-2,527.9	802.7	664.1	562.0	102.08	6.505		
9,200.0	6,708.3	9,183.7	6,641.3	52.9	54.3	-84.12	-2,627.9	802.7	664.1	558.3	105.75	6.279		
9,300.0	6,707.4	9,283.7	6,640.5	54.8	56.1	-84.13	-2,727.9	802.7	664.0	554.6	109.43	6.068		
9,400.0	6,706.4	9,383.7	6,639.8	56.6	57.9	-84.15	-2,827.9	802.7	664.0	550.9	113.12	5.870		
9,500.0	6,705.5	9,483.7	6,639.1	58.5	59.8	-84.17	-2,927.9	802.7	664.0	547.2	116.81	5.684		
9,600.0	6,704.5	9,583.7	6,638.3	60.3	61.6	-84.19	-3,027.9	802.7	664.0	543.5	120.52	5.509		
9,700.0	6,703.6	9,683.7	6,637.6	62.2	63.4	-84.21	-3,127.9	802.7	664.0	539.7	124.23	5.344		
9,800.0	6,702.7	9,783.7	6,636.9	64.1	65.3	-84.22	-3,227.9	802.7	663.9	536.0	127.95	5.189		
9,900.0	6,701.7	9,883.7	6,636.1	65.9	67.1	-84.24	-3,327.9	802.7	663.9	532.2	131.68	5.042		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design      Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-243 - Wellbore #1 - Plan #1 (2-13-14)													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	6,700.8	9,983.7	6,635.4	67.8	68.9	-84.26	-3,427.9	802.7	663.9	528.5	135.41	4.903		
10,100.0	6,699.8	10,083.7	6,634.7	69.7	70.8	-84.28	-3,527.9	802.7	663.9	524.7	139.15	4.771		
10,200.0	6,698.9	10,183.7	6,633.9	71.6	72.6	-84.30	-3,627.9	802.7	663.9	521.0	142.89	4.646		
10,300.0	6,698.0	10,283.7	6,633.2	73.5	74.5	-84.31	-3,727.9	802.7	663.8	517.2	146.64	4.527		
10,400.0	6,697.0	10,383.7	6,632.5	75.3	76.3	-84.33	-3,827.9	802.7	663.8	513.4	150.39	4.414		
10,500.0	6,696.1	10,483.7	6,631.7	77.2	78.2	-84.35	-3,927.9	802.7	663.8	509.6	154.14	4.306		
10,600.0	6,695.1	10,583.7	6,631.0	79.1	80.1	-84.37	-4,027.9	802.7	663.8	505.9	157.90	4.204		
10,700.0	6,694.2	10,683.7	6,630.3	81.0	81.9	-84.39	-4,127.9	802.7	663.8	502.1	161.66	4.106		
10,800.0	6,693.2	10,783.7	6,629.5	82.9	83.8	-84.40	-4,227.9	802.7	663.7	498.3	165.43	4.012		
10,900.0	6,692.3	10,883.7	6,628.8	84.8	85.7	-84.42	-4,327.9	802.7	663.7	494.5	169.20	3.923		
11,000.0	6,691.4	10,983.7	6,628.1	86.7	87.5	-84.44	-4,427.9	802.7	663.7	490.7	172.97	3.837		
11,100.0	6,690.4	11,083.7	6,627.3	88.6	89.4	-84.46	-4,527.9	802.7	663.7	486.9	176.74	3.755		
11,143.7	6,690.0	11,127.4	6,627.0	89.2	90.2	-84.47	-4,571.6	802.7	663.7	485.4	178.24	3.724 SF		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	2.0	2.0	0.0	0.0	89.99	89.99	0.0	89.2	89.2	89.2	0.00	N/A	
100.0	100.0	102.0	102.0	0.1	0.1	89.99	89.99	0.0	89.2	89.2	88.9	0.23	388.973	
166.0	166.0	168.0	168.0	0.3	0.3	89.99	89.99	0.0	89.2	89.2	88.7	0.53	169.572 CC	
200.0	200.0	201.9	201.9	0.3	0.3	89.99	89.99	0.0	89.2	89.2	88.5	0.68	131.431 ES	
300.0	300.0	300.0	300.0	0.6	0.6	89.82	89.82	0.3	90.9	90.9	89.8	1.12	81.429	
400.0	400.0	395.7	395.5	0.8	0.8	89.38	89.38	1.0	95.8	96.0	94.4	1.56	61.619	
500.0	500.0	492.0	491.5	1.0	1.0	88.73	88.73	2.3	103.9	104.4	102.4	2.01	51.827	
600.0	600.0	587.6	586.4	1.2	1.3	87.99	87.99	4.0	115.0	116.2	113.7	2.49	46.716	
700.0	700.0	682.4	680.1	1.5	1.6	87.24	87.24	6.2	129.2	131.2	128.2	2.98	44.089	
800.0	800.0	776.1	772.3	1.7	1.9	86.53	86.53	8.9	146.2	149.5	146.0	3.49	42.894	
900.0	900.0	873.7	867.9	1.9	2.3	85.89	85.89	11.9	165.7	169.6	165.6	4.02	42.177	
1,000.0	1,000.0	971.7	963.8	2.1	2.8	85.39	85.39	14.9	185.3	189.7	185.2	4.56	41.585	
1,100.0	1,100.0	1,069.6	1,059.7	2.4	3.2	84.98	84.98	18.0	204.8	209.9	204.8	5.11	41.056	
1,200.0	1,200.0	1,167.6	1,155.6	2.6	3.6	84.65	84.65	21.0	224.3	230.1	224.4	5.67	40.591	
1,300.0	1,300.0	1,265.5	1,251.5	2.8	4.0	84.37	84.37	24.1	243.9	250.2	244.0	6.23	40.183	
1,400.0	1,400.0	1,363.4	1,347.5	3.0	4.5	84.13	84.13	27.1	263.4	270.4	263.6	6.79	39.825	
1,500.0	1,500.0	1,461.4	1,443.4	3.3	4.9	83.92	83.92	30.1	283.0	290.6	283.2	7.35	39.510	
1,600.0	1,600.0	1,559.3	1,539.3	3.5	5.3	83.74	83.74	33.2	302.5	310.7	302.8	7.92	39.231	
1,700.0	1,700.0	1,657.3	1,635.2	3.7	5.8	83.59	83.59	36.2	322.1	330.9	322.4	8.49	38.983	
1,800.0	1,800.0	1,755.2	1,731.1	3.9	6.2	83.45	83.45	39.2	341.6	351.1	342.0	9.06	38.761	
1,900.0	1,900.0	1,853.1	1,827.1	4.2	6.6	83.32	83.32	42.3	361.2	371.3	361.7	9.63	38.562	
2,000.0	2,000.0	1,951.1	1,923.0	4.4	7.1	83.21	83.21	45.3	380.7	391.5	381.3	10.20	38.382	
2,100.0	2,100.0	2,049.0	2,018.9	4.6	7.5	83.11	83.11	48.4	400.3	411.7	400.9	10.77	38.219	
2,200.0	2,200.0	2,146.9	2,114.8	4.8	7.9	83.02	83.02	51.4	419.8	431.8	420.5	11.34	38.070	
2,300.0	2,300.0	2,244.9	2,210.7	5.1	8.4	82.94	82.94	54.4	439.4	452.0	440.1	11.92	37.935	
2,400.0	2,400.0	2,342.8	2,306.7	5.3	8.8	82.86	82.86	57.5	458.9	472.2	459.7	12.49	37.810	
2,500.0	2,500.0	2,440.8	2,402.6	5.5	9.2	82.79	82.79	60.5	478.5	492.4	479.4	13.06	37.696	
2,600.0	2,600.0	2,539.0	2,498.7	5.7	9.7	41.33	41.33	63.6	498.1	511.3	499.4	11.93	42.850	
2,700.0	2,699.8	2,637.6	2,595.3	5.9	10.1	41.43	41.43	66.6	517.7	527.7	515.2	12.42	42.486	
2,800.0	2,799.5	2,736.5	2,692.2	6.2	10.6	41.82	41.82	69.7	537.5	541.5	528.6	12.90	41.971	
2,900.0	2,899.0	2,835.4	2,789.1	6.4	11.0	42.41	42.41	72.8	557.2	554.6	541.3	13.38	41.443	
3,000.0	2,998.5	2,934.4	2,886.1	6.6	11.5	42.97	42.97	75.8	577.0	567.8	554.0	13.87	40.943	
3,100.0	3,098.1	3,033.4	2,983.0	6.9	11.9	43.50	43.50	78.9	596.7	581.1	566.7	14.36	40.470	
3,200.0	3,197.6	3,132.4	3,079.9	7.1	12.3	44.01	44.01	82.0	616.5	594.4	579.5	14.85	40.021	
3,300.0	3,297.1	3,231.4	3,176.9	7.3	12.8	44.49	44.49	85.0	636.3	607.7	592.4	15.35	39.595	
3,400.0	3,396.7	3,330.3	3,273.8	7.6	13.2	44.96	44.96	88.1	656.0	621.1	605.2	15.85	39.190	
3,500.0	3,496.2	3,429.3	3,370.8	7.8	13.7	45.41	45.41	91.2	675.8	634.5	618.1	16.35	38.805	
3,600.0	3,595.7	3,528.3	3,467.7	8.1	14.1	45.83	45.83	94.2	695.5	647.9	631.1	16.86	38.438	
3,700.0	3,695.3	3,627.3	3,564.6	8.3	14.6	46.24	46.24	97.3	715.3	661.4	644.1	17.37	38.088	
3,800.0	3,794.8	3,726.2	3,661.6	8.6	15.0	46.64	46.64	100.4	735.0	674.9	657.1	17.88	37.754	
3,900.0	3,894.3	3,825.2	3,758.5	8.9	15.4	47.02	47.02	103.5	754.8	688.5	670.1	18.39	37.435	
4,000.0	3,993.9	3,924.2	3,855.4	9.1	15.9	47.38	47.38	106.5	774.5	702.1	683.2	18.91	37.131	
4,100.0	4,093.4	4,023.2	3,952.4	9.4	16.3	47.73	47.73	109.6	794.3	715.7	696.2	19.43	36.839	
4,200.0	4,192.9	4,122.2	4,049.3	9.6	16.8	48.07	48.07	112.7	814.0	729.3	709.3	19.95	36.560	
4,300.0	4,292.5	4,221.1	4,146.3	9.9	17.2	48.39	48.39	115.7	833.8	742.9	722.5	20.47	36.292	
4,400.0	4,392.0	4,320.1	4,243.2	10.2	17.7	48.70	48.70	118.8	853.6	756.6	735.6	21.00	36.036	
4,500.0	4,491.5	4,419.1	4,340.1	10.4	18.1	49.01	49.01	121.9	873.3	770.3	748.8	21.52	35.790	
4,600.0	4,591.1	4,518.1	4,437.1	10.7	18.5	49.30	49.30	124.9	893.1	784.0	762.0	22.05	35.554	
4,700.0	4,690.6	4,617.0	4,534.0	11.0	19.0	49.58	49.58	128.0	912.8	797.8	775.2	22.58	35.327	
4,800.0	4,790.2	4,716.0	4,630.9	11.2	19.4	49.96	49.96	131.1	932.6	812.0	788.9	23.08	35.177	
4,900.0	4,890.0	4,814.6	4,727.5	11.4	19.9	50.26	50.26	134.1	952.3	828.4	804.9	23.52	35.216	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,990.0	4,912.8	4,823.7	11.6	20.3	50.41		137.2	971.9	846.9	823.0	23.93	35.392	
5,100.0	5,090.0	5,010.8	4,919.6	11.8	20.8	91.47		140.2	991.4	866.8	842.4	24.36	35.576	
5,200.0	5,190.0	5,108.7	5,015.6	12.0	21.2	91.24		143.3	1,011.0	886.7	861.9	24.83	35.717	
5,300.0	5,290.0	5,206.7	5,111.5	12.2	21.6	91.01		146.3	1,030.5	906.6	881.3	25.29	35.852	
5,400.0	5,390.0	5,304.6	5,207.4	12.4	22.1	90.80		149.3	1,050.0	926.5	900.8	25.75	35.981	
5,500.0	5,490.0	5,402.5	5,303.3	12.6	22.5	90.59		152.4	1,069.6	946.4	920.2	26.21	36.105	
5,600.0	5,590.0	5,540.1	5,438.5	12.8	23.0	90.34		156.3	1,094.7	964.8	938.0	26.73	36.086	
5,700.0	5,690.0	5,689.1	5,586.1	13.0	23.4	90.16		159.4	1,114.6	978.1	950.9	27.24	35.914	
5,800.0	5,790.0	5,839.8	5,736.3	13.2	23.7	90.04		161.3	1,127.0	986.4	958.7	27.72	35.589	
5,900.0	5,890.0	5,991.5	5,887.9	13.5	23.9	90.00		162.0	1,131.6	989.4	961.2	28.18	35.109	
6,000.0	5,990.0	6,095.6	5,992.0	13.7	24.0	-90.03		162.0	1,131.6	989.4	960.9	28.56	34.640	
6,100.0	6,089.4	6,195.6	6,092.0	13.8	24.1	-90.52		160.5	1,131.6	989.5	960.6	28.83	34.320	
6,200.0	6,186.7	6,297.0	6,192.4	13.9	24.2	-91.11		147.6	1,131.6	989.6	960.6	29.02	34.099	
6,300.0	6,280.1	6,399.8	6,291.6	14.0	24.3	-91.69		121.0	1,131.6	989.9	960.7	29.18	33.925	
6,400.0	6,368.2	6,504.0	6,387.6	14.1	24.3	-92.24		80.7	1,131.6	990.2	960.8	29.36	33.727	
6,500.0	6,449.3	6,609.6	6,478.4	14.2	24.4	-92.76		26.9	1,131.6	990.6	960.9	29.64	33.422	
6,600.0	6,522.1	6,716.5	6,561.9	14.3	24.5	-93.22		-39.7	1,131.6	991.0	960.9	30.09	32.932	
6,700.0	6,585.3	6,824.7	6,636.1	14.7	24.6	-93.64		-118.4	1,131.6	991.4	960.6	30.80	32.186	
6,800.0	6,637.9	6,934.0	6,699.0	15.3	24.8	-93.98		-207.6	1,131.6	991.8	960.0	31.83	31.165	
6,900.0	6,679.0	7,044.1	6,748.9	16.0	25.1	-94.25		-305.7	1,131.6	992.2	959.0	33.19	29.890	
7,000.0	6,707.8	7,155.0	6,784.3	16.9	25.6	-94.45		-410.7	1,131.6	992.4	957.5	34.91	28.425	
7,100.0	6,723.9	7,266.4	6,804.2	18.0	26.3	-94.56		-520.2	1,131.6	992.6	955.6	36.95	26.860	
7,200.0	6,727.2	7,368.2	6,814.6	19.2	27.0	-94.93		-621.5	1,131.6	993.1	954.0	39.14	25.375	
7,300.0	6,726.2	7,475.7	6,818.4	20.5	27.9	-95.21		-728.8	1,131.6	993.5	951.8	41.70	23.827	
7,400.0	6,725.3	7,575.7	6,818.1	21.9	28.9	-95.24		-828.8	1,131.6	993.6	949.2	44.39	22.381	
7,500.0	6,724.3	7,675.7	6,817.7	23.3	30.0	-95.28		-928.8	1,131.6	993.6	946.4	47.24	21.034	
7,600.0	6,723.4	7,775.7	6,817.4	24.9	31.1	-95.31		-1,028.8	1,131.6	993.7	943.5	50.21	19.790	
7,700.0	6,722.5	7,875.7	6,817.0	26.4	32.4	-95.34		-1,128.8	1,131.6	993.8	940.5	53.30	18.646	
7,800.0	6,721.5	7,975.7	6,816.7	28.1	33.7	-95.38		-1,228.8	1,131.6	993.8	937.3	56.47	17.599	
7,900.0	6,720.6	8,075.7	6,816.3	29.7	35.1	-95.41		-1,328.8	1,131.6	993.9	934.1	59.72	16.643	
8,000.0	6,719.6	8,175.7	6,816.0	31.4	36.5	-95.45		-1,428.8	1,131.6	993.9	930.9	63.03	15.769	
8,100.0	6,718.7	8,275.7	6,815.6	33.1	38.0	-95.48		-1,528.8	1,131.6	994.0	927.6	66.40	14.971	
8,200.0	6,717.7	8,375.6	6,815.3	34.9	39.5	-95.51		-1,628.8	1,131.6	994.0	924.2	69.81	14.239	
8,300.0	6,716.8	8,475.6	6,814.9	36.6	41.0	-95.55		-1,728.8	1,131.6	994.1	920.8	73.26	13.569	
8,400.0	6,715.9	8,575.6	6,814.6	38.4	42.6	-95.58		-1,828.8	1,131.6	994.2	917.4	76.75	12.953	
8,500.0	6,714.9	8,675.6	6,814.2	40.2	44.2	-95.62		-1,928.8	1,131.6	994.2	913.9	80.27	12.386	
8,600.0	6,714.0	8,775.6	6,813.9	42.0	45.9	-95.65		-2,028.8	1,131.6	994.3	910.5	83.81	11.863	
8,700.0	6,713.0	8,875.6	6,813.5	43.8	47.5	-95.68		-2,128.8	1,131.6	994.3	907.0	87.38	11.380	
8,800.0	6,712.1	8,975.6	6,813.2	45.6	49.2	-95.72		-2,228.8	1,131.6	994.4	903.4	90.96	10.932	
8,900.0	6,711.1	9,075.6	6,812.8	47.4	50.9	-95.75		-2,328.8	1,131.6	994.5	899.9	94.57	10.516	
9,000.0	6,710.2	9,175.6	6,812.5	49.2	52.6	-95.79		-2,428.8	1,131.6	994.5	896.3	98.19	10.129	
9,100.0	6,709.3	9,275.6	6,812.1	51.1	54.3	-95.82		-2,528.8	1,131.6	994.6	892.8	101.82	9.768	
9,200.0	6,708.3	9,375.6	6,811.8	52.9	56.1	-95.85		-2,628.8	1,131.6	994.6	889.2	105.47	9.431	
9,300.0	6,707.4	9,475.6	6,811.4	54.8	57.8	-95.89		-2,728.8	1,131.6	994.7	885.6	109.12	9.115	
9,400.0	6,706.4	9,575.6	6,811.1	56.6	59.6	-95.92		-2,828.8	1,131.6	994.8	882.0	112.79	8.819	
9,500.0	6,705.5	9,675.6	6,810.7	58.5	61.4	-95.96		-2,928.8	1,131.6	994.8	878.4	116.47	8.541	
9,600.0	6,704.5	9,775.6	6,810.4	60.3	63.1	-95.99		-3,028.8	1,131.6	994.9	874.7	120.15	8.280	
9,700.0	6,703.6	9,875.6	6,810.0	62.2	64.9	-96.02		-3,128.8	1,131.6	994.9	871.1	123.85	8.034	
9,800.0	6,702.7	9,975.6	6,809.7	64.1	66.7	-96.06		-3,228.8	1,131.6	995.0	867.5	127.55	7.801	
9,900.0	6,701.7	10,075.6	6,809.3	65.9	68.5	-96.09		-3,328.8	1,131.6	995.1	863.8	131.25	7.581	
10,000.0	6,700.8	10,175.6	6,809.0	67.8	70.3	-96.13		-3,428.8	1,131.6	995.1	860.2	134.96	7.373	

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-403 - Wellbore #1 - Plan #1 (2-13-14)												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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	6,699.8	10,275.6	6,808.6	69.7	72.1	-96.16	-3,528.8	1,131.6	995.2	856.5	138.68	7.176	
10,200.0	6,698.9	10,375.6	6,808.3	71.6	74.0	-96.19	-3,628.7	1,131.6	995.3	852.9	142.40	6.989	
10,300.0	6,698.0	10,475.6	6,807.9	73.5	75.8	-96.23	-3,728.7	1,131.6	995.3	849.2	146.12	6.812	
10,400.0	6,697.0	10,575.6	6,807.6	75.3	77.6	-96.26	-3,828.7	1,131.6	995.4	845.5	149.85	6.642	
10,500.0	6,696.1	10,675.6	6,807.2	77.2	79.4	-96.30	-3,928.7	1,131.6	995.5	841.9	153.59	6.481	
10,600.0	6,695.1	10,775.6	6,806.9	79.1	81.3	-96.33	-4,028.7	1,131.6	995.5	838.2	157.32	6.328	
10,700.0	6,694.2	10,875.6	6,806.5	81.0	83.1	-96.36	-4,128.7	1,131.6	995.6	834.5	161.06	6.182	
10,800.0	6,693.2	10,975.6	6,806.2	82.9	85.0	-96.40	-4,228.7	1,131.6	995.7	830.9	164.80	6.042	
10,900.0	6,692.3	11,075.6	6,805.8	84.8	86.8	-96.43	-4,328.7	1,131.6	995.7	827.2	168.55	5.908	
11,000.0	6,691.4	11,175.6	6,805.5	86.7	88.7	-96.47	-4,428.7	1,131.6	995.8	823.5	172.29	5.780	
11,100.0	6,690.4	11,275.6	6,805.2	88.6	90.5	-96.50	-4,528.7	1,131.6	995.9	819.8	176.04	5.657	
11,143.7	6,690.0	11,318.9	6,805.0	89.2	91.3	-96.51	-4,572.0	1,131.6	995.9	818.4	177.45	5.612 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4682.0ft (RKB - 15')

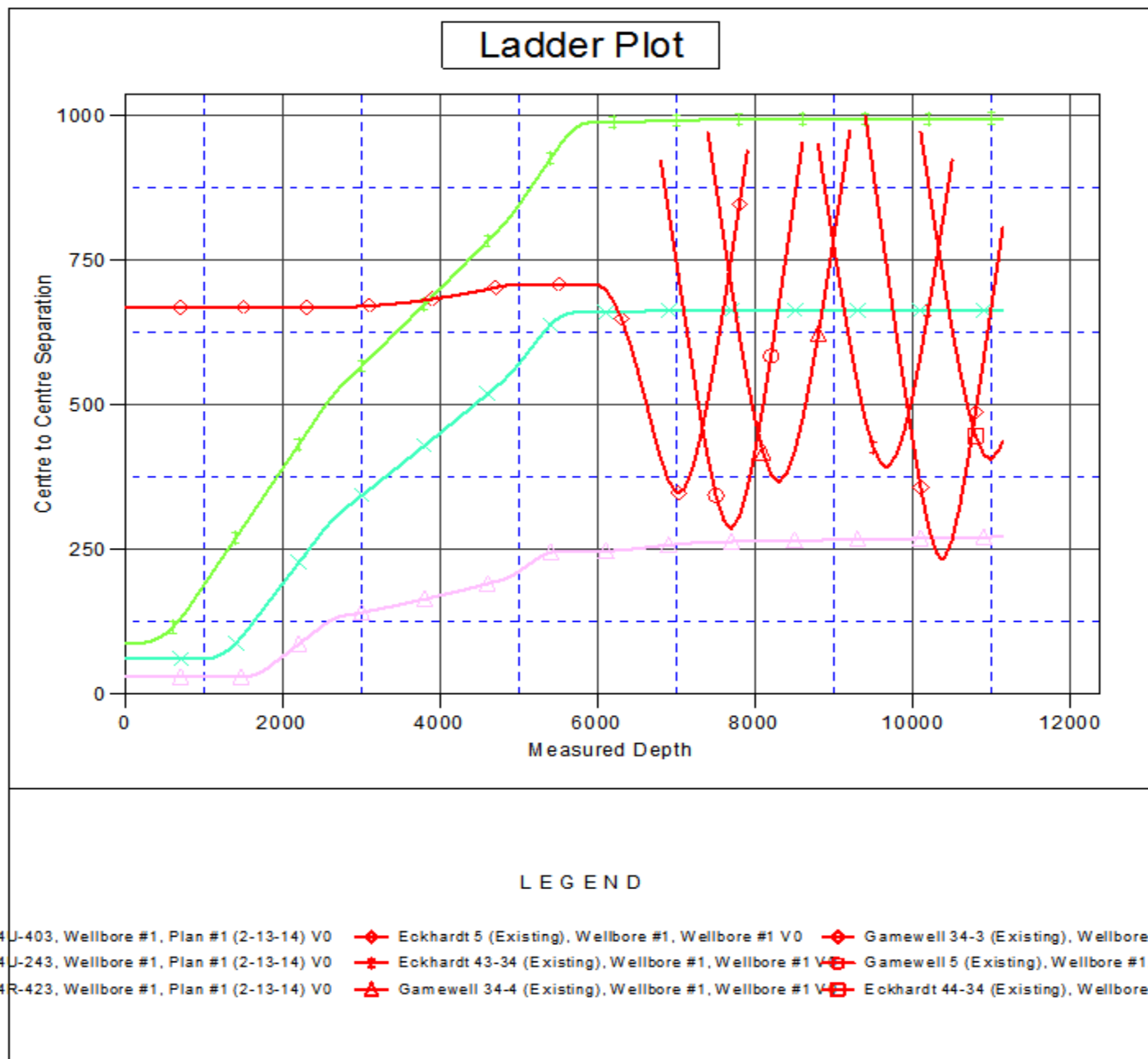
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Suden 34R-323

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.63°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-323
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4682.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-323	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (2-13-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4682.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Suden 34R-323

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.63°

