

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Suden 34R-423**

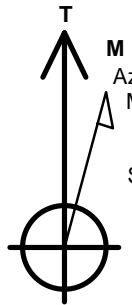
Surface Location: Suden 34U-HZ Pad Sec.34-T5N-R64W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4667.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1376383.29	3270145.76	40.362520	-104.530550	

Ensign Rig #136 - RKB - 12.5' WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')

## 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	6804.0	-4572.1	142.2	Point



Azimuths to True North  
 Magnetic North: 8.31°

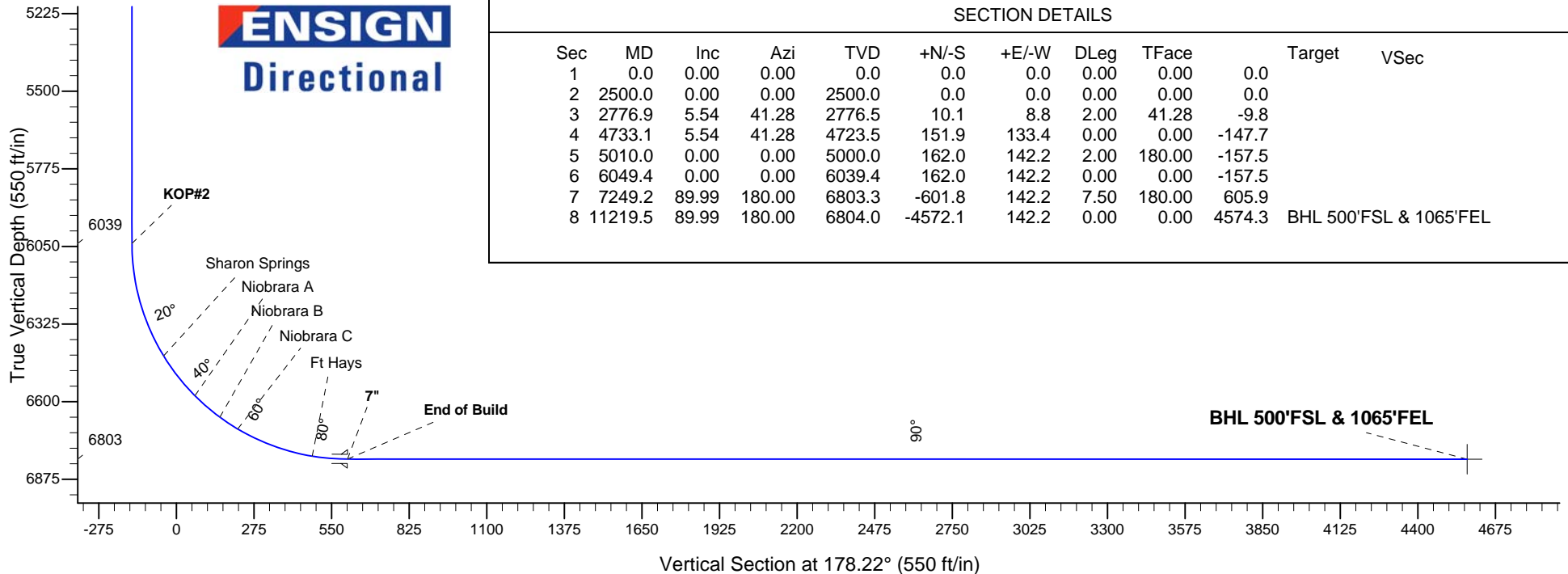
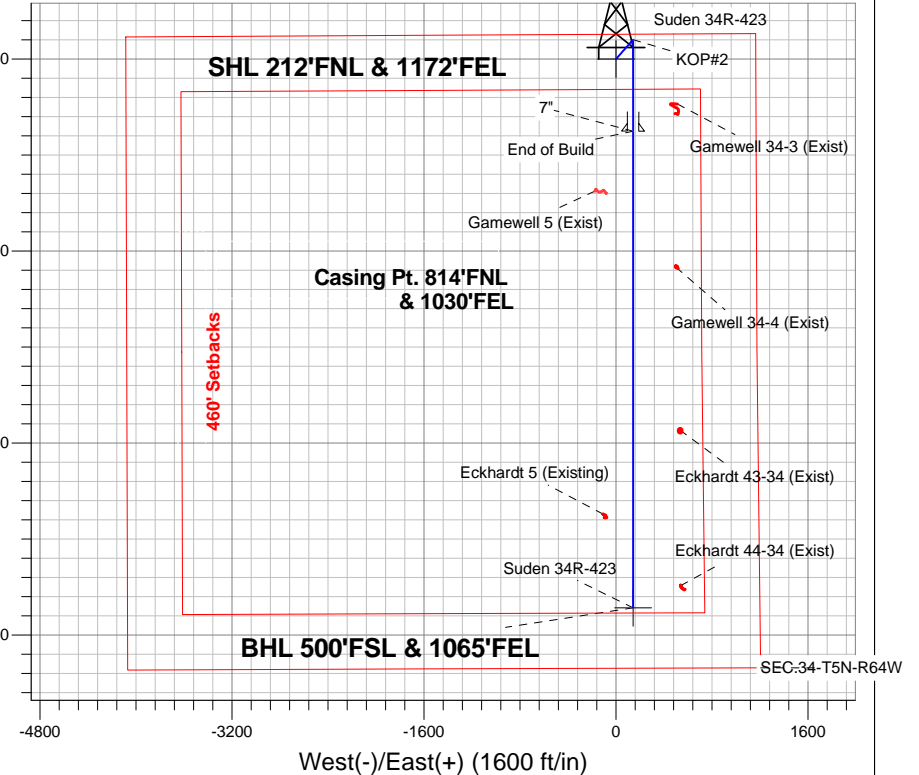
Magnetic Field  
 Strength: 52808.0snT  
 Dip Angle: 66.95°  
 Date: 7/31/2014  
 Model: IGRF2010

## ANNOTATIONS

TVD	MD	Annotation
2500.0	2500.0	KOP #1
6039.4	6049.4	KOP#2
6803.3	7249.2	End of Build

Suden 34U-HZ Pad Sec.34-T5N-R64W  
 Suden 34R-423  
 Plan #2 (8-01-14)  
 8:43, August 01 2014

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



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
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	142.2	162.0	2.00	180.00	-157.5	
6	6049.4	0.00	0.00	6039.4	162.0	142.2	0.00	0.00	-157.5	
7	7249.2	89.99	180.00	6803.3	-601.8	142.2	7.50	180.00	605.9	
8	11219.5	89.99	180.00	6804.0	-4572.1	142.2	0.00	0.00	4574.3	BHL 500'FSL & 1065'FEL



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.34-T5N-R64W**

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

**Suden 34R-423**

**Wellbore #1**

**Plan: Plan #2 (8-01-14)**

## **Standard Planning Report**

**01 August, 2014**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Project:</b>	SEC.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Suden 34R-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (8-01-14)		

<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-423					
Well Position	+N/-S	0.0 ft	Northing:	1,376,383.29 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	7/31/2014	8.31	66.95	52,808

<b>Design</b>	Plan #2 (8-01-14)			
<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	
6,049.4	0.00	0.00	6,039.4	162.0	142.2	0.00	0.00	0.00	0.00	
7,249.2	89.99	180.00	6,803.3	-601.8	142.2	7.50	7.50	0.00	180.00	
11,219.5	89.99	180.00	6,804.0	-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-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Project:</b>	SEC.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Suden 34R-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (8-01-14)		

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

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Project:</b>	SEC.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Suden 34R-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (8-01-14)		

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)
4,400.0	5.54	41.28	4,392.0	127.8	112.2	-124.2	0.00	0.00	0.00
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
6,000.0	0.00	0.00	5,990.0	162.0	142.2	-157.5	0.00	0.00	0.00
6,049.4	0.00	0.00	6,039.4	162.0	142.2	-157.5	0.00	0.00	0.00
<b>KOP#2</b>									
6,100.0	3.80	180.00	6,090.0	160.3	142.2	-155.8	7.51	7.51	0.00
6,200.0	11.30	180.00	6,189.0	147.2	142.2	-142.7	7.50	7.50	0.00
6,300.0	18.80	180.00	6,285.5	121.3	142.2	-116.8	7.50	7.50	0.00
6,400.0	26.30	180.00	6,377.8	82.9	142.2	-78.5	7.50	7.50	0.00
6,468.7	31.45	180.00	6,438.0	49.7	142.2	-45.3	7.50	7.50	0.00
<b>Sharon Springs</b>									
6,500.0	33.80	180.00	6,464.3	32.9	142.2	-28.5	7.50	7.50	0.00
6,600.0	41.30	180.00	6,543.5	-28.0	142.2	32.4	7.50	7.50	0.00
6,648.6	44.94	180.00	6,579.0	-61.2	142.2	65.6	7.50	7.50	0.00
<b>Niobrara A</b>									
6,700.0	48.80	180.00	6,614.1	-98.7	142.2	103.1	7.50	7.50	0.00
6,765.3	53.69	180.00	6,655.0	-149.6	142.2	154.0	7.50	7.50	0.00
<b>Niobrara B</b>									
6,800.0	56.30	180.00	6,674.9	-178.1	142.2	182.4	7.50	7.50	0.00
6,841.5	59.41	180.00	6,697.0	-213.2	142.2	217.5	7.50	7.50	0.00
<b>Niobrara C</b>									
6,900.0	63.80	180.00	6,724.8	-264.6	142.2	268.9	7.50	7.50	0.00
7,000.0	71.30	180.00	6,763.0	-357.0	142.2	361.2	7.50	7.50	0.00
7,100.0	78.80	180.00	6,788.8	-453.5	142.2	457.7	7.50	7.50	0.00
7,123.7	80.58	180.00	6,793.0	-476.9	142.2	481.1	7.50	7.50	0.00
<b>Ft Hays</b>									
7,200.0	86.30	180.00	6,801.7	-552.6	142.2	556.8	7.50	7.50	0.00
7,249.2	89.99	180.00	6,803.3	-601.8	142.2	605.9	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,300.0	89.99	180.00	6,803.3	-652.6	142.2	656.7	0.00	0.00	0.00
7,400.0	89.99	180.00	6,803.3	-752.6	142.2	756.6	0.00	0.00	0.00
7,500.0	89.99	180.00	6,803.4	-852.6	142.2	856.6	0.00	0.00	0.00
7,600.0	89.99	180.00	6,803.4	-952.6	142.2	956.5	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Project:</b>	SEC.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Suden 34R-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (8-01-14)		

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)
7,700.0	89.99	180.00	6,803.4	-1,052.6	142.2	1,056.5	0.00	0.00	0.00
7,800.0	89.99	180.00	6,803.4	-1,152.6	142.2	1,156.4	0.00	0.00	0.00
7,900.0	89.99	180.00	6,803.4	-1,252.6	142.2	1,256.4	0.00	0.00	0.00
8,000.0	89.99	180.00	6,803.4	-1,352.6	142.2	1,356.4	0.00	0.00	0.00
8,100.0	89.99	180.00	6,803.5	-1,452.6	142.2	1,456.3	0.00	0.00	0.00
8,200.0	89.99	180.00	6,803.5	-1,552.6	142.2	1,556.3	0.00	0.00	0.00
8,300.0	89.99	180.00	6,803.5	-1,652.6	142.2	1,656.2	0.00	0.00	0.00
8,400.0	89.99	180.00	6,803.5	-1,752.6	142.2	1,756.2	0.00	0.00	0.00
8,500.0	89.99	180.00	6,803.5	-1,852.6	142.2	1,856.1	0.00	0.00	0.00
8,600.0	89.99	180.00	6,803.5	-1,952.6	142.2	1,956.1	0.00	0.00	0.00
8,700.0	89.99	180.00	6,803.6	-2,052.6	142.2	2,056.0	0.00	0.00	0.00
8,800.0	89.99	180.00	6,803.6	-2,152.6	142.2	2,156.0	0.00	0.00	0.00
8,900.0	89.99	180.00	6,803.6	-2,252.6	142.2	2,255.9	0.00	0.00	0.00
9,000.0	89.99	180.00	6,803.6	-2,352.6	142.2	2,355.9	0.00	0.00	0.00
9,100.0	89.99	180.00	6,803.6	-2,452.6	142.2	2,455.8	0.00	0.00	0.00
9,200.0	89.99	180.00	6,803.6	-2,552.6	142.2	2,555.8	0.00	0.00	0.00
9,300.0	89.99	180.00	6,803.7	-2,652.6	142.2	2,655.7	0.00	0.00	0.00
9,400.0	89.99	180.00	6,803.7	-2,752.6	142.2	2,755.7	0.00	0.00	0.00
9,500.0	89.99	180.00	6,803.7	-2,852.6	142.2	2,855.6	0.00	0.00	0.00
9,600.0	89.99	180.00	6,803.7	-2,952.6	142.2	2,955.6	0.00	0.00	0.00
9,700.0	89.99	180.00	6,803.7	-3,052.6	142.2	3,055.5	0.00	0.00	0.00
9,800.0	89.99	180.00	6,803.8	-3,152.6	142.2	3,155.5	0.00	0.00	0.00
9,900.0	89.99	180.00	6,803.8	-3,252.6	142.2	3,255.4	0.00	0.00	0.00
10,000.0	89.99	180.00	6,803.8	-3,352.6	142.2	3,355.4	0.00	0.00	0.00
10,100.0	89.99	180.00	6,803.8	-3,452.6	142.2	3,455.3	0.00	0.00	0.00
10,200.0	89.99	180.00	6,803.8	-3,552.6	142.2	3,555.3	0.00	0.00	0.00
10,300.0	89.99	180.00	6,803.8	-3,652.6	142.2	3,655.2	0.00	0.00	0.00
10,400.0	89.99	180.00	6,803.9	-3,752.6	142.2	3,755.2	0.00	0.00	0.00
10,500.0	89.99	180.00	6,803.9	-3,852.6	142.2	3,855.1	0.00	0.00	0.00
10,600.0	89.99	180.00	6,803.9	-3,952.6	142.2	3,955.1	0.00	0.00	0.00
10,700.0	89.99	180.00	6,803.9	-4,052.6	142.2	4,055.0	0.00	0.00	0.00
10,800.0	89.99	180.00	6,803.9	-4,152.6	142.2	4,155.0	0.00	0.00	0.00
10,900.0	89.99	180.00	6,803.9	-4,252.6	142.2	4,254.9	0.00	0.00	0.00
11,000.0	89.99	180.00	6,804.0	-4,352.6	142.2	4,354.9	0.00	0.00	0.00
11,100.0	89.99	180.00	6,804.0	-4,452.6	142.2	4,454.9	0.00	0.00	0.00
11,200.0	89.99	180.00	6,804.0	-4,552.6	142.2	4,554.8	0.00	0.00	0.00
11,219.5	89.99	180.00	6,804.0	-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 (")	
7,249.2	6,803.3	7"	7	7-1/2	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Project:</b>	SEC.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Suden 34R-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (8-01-14)		

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		
6,468.7	6,438.0	Sharon Springs		0.00		
6,648.6	6,579.0	Niobrara A		0.00		
6,765.3	6,655.0	Niobrara B		0.00		
6,841.5	6,697.0	Niobrara C		0.00		
7,123.7	6,793.0	Ft Hays		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,500.0	2,500.0	0.0	0.0	KOP #1	
6,049.4	6,039.4	162.0	142.2	KOP#2	
7,249.2	6,803.3	-601.8	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-423**

**Wellbore #1**

**Plan #2 (8-01-14)**

## **Anticollision Report**

**01 August, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2 (8-01-14)
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria
<b>Interpolation Method:</b>	MD Interval 100.0ft
<b>Depth Range:</b>	Unlimited
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0ft
<b>Warning Levels Evaluated at:</b>	2.00 Sigma
<b>Error Model:</b>	ISCWSA
<b>Scan Method:</b>	Closest Approach 3D
<b>Error Surface:</b>	Elliptical Conic

Survey Tool Program		Date	8/1/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,219.5	Plan #2 (8-01-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Suden (Existing) Pad Sec.34-T5N-R64W						
Eckhardt 43-34 (Exist) - Wellbore #1 - Wellbore #1	9,740.4	6,625.0	412.1	226.6	2.221	CC, ES, SF
Eckhardt 44-34 (Exist) - Wellbore #1 - Wellbore #1	11,033.2	6,754.1	395.6	297.2	4.022	CC, ES, SF
Eckhardt 5 (Existing) - Wellbore #1 - Wellbore #1	10,439.6	6,753.6	251.4	165.0	2.911	CC, ES, SF
Gamewell 34-3 (Exist) - Wellbore #1 - Wellbore #1	7,009.4	6,746.2	357.3	328.0	12.198	CC, ES
Gamewell 34-3 (Exist) - Wellbore #1 - Wellbore #1	7,100.0	6,769.3	367.5	337.3	12.158	SF
Gamewell 34-4 (Exist) - Wellbore #1 - Wellbore #1	8,380.7	6,797.7	356.2	307.2	7.266	CC, ES
Gamewell 34-4 (Exist) - Wellbore #1 - Wellbore #1	8,400.0	6,798.0	356.7	307.3	7.227	SF
Gamewell 5 (Exist) - Wellbore #1 - Wellbore #1	7,747.7	6,778.5	317.5	278.2	8.083	CC, ES
Gamewell 5 (Exist) - Wellbore #1 - Wellbore #1	7,800.0	6,778.7	321.8	281.7	8.022	SF
Suden 34R-HZ Pad Sec.34-T5N-R64W						
Suden 34R-203 - Wellbore #1 - Plan #2 (7-31-14)	4,730.5	4,768.3	386.6	364.3	17.308	CC
Suden 34R-203 - Wellbore #1 - Plan #2 (7-31-14)	11,220.2	11,086.1	426.7	264.0	2.623	ES, SF
Suden 34U-HZ Pad Sec.34-T5N-R64W						
Suden 34R-323 - Wellbore #1 - Plan #2 (7-01-14)	1,466.3	1,467.3	30.7	24.3	4.813	CC
Suden 34R-323 - Wellbore #1 - Plan #2 (7-01-14)	1,500.0	1,501.0	30.7	24.1	4.701	ES
Suden 34R-323 - Wellbore #1 - Plan #2 (7-01-14)	11,220.2	11,155.5	274.6	110.0	1.668	SF
Suden 34U-243 - Wellbore #1 - Plan #1 (7-01-14)	966.3	967.3	61.3	57.2	14.876	CC
Suden 34U-243 - Wellbore #1 - Plan #1 (7-01-14)	1,000.0	1,000.0	61.3	57.0	14.358	ES
Suden 34U-243 - Wellbore #1 - Plan #1 (7-01-14)	11,220.2	11,127.2	684.1	509.8	3.924	SF
Suden 34U-403 - Wellbore #1 - Plan #1 (7-01-14)	466.0	468.0	89.2	87.3	47.574	CC
Suden 34U-403 - Wellbore #1 - Plan #1 (7-01-14)	500.0	501.9	89.2	87.2	43.993	ES
Suden 34U-403 - Wellbore #1 - Plan #1 (7-01-14)	11,220.2	11,321.4	989.5	810.4	5.526	SF

Offset Design		Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 43-34 (Exist) - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft	
Survey Program:		6625-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	+E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)				
8,900.0	6,803.6	6,625.0	6,625.0	46.1	132.5	-72.45	-3,093.0	535.1	936.0	765.3	170.68	5.484			
9,000.0	6,803.6	6,625.0	6,625.0	47.9	132.5	-72.45	-3,093.0	535.1	847.3	674.9	172.43	4.914			

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-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 43-34 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft
Survey Program: 6625-UNKNOWN													Offset Well Error: 0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	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
9,100.0	6,803.6	6,625.0	6,625.0	49.7	132.5	-72.45	-3,093.0	535.1	761.5	587.3	174.19	4.372	
9,200.0	6,803.6	6,625.0	6,625.0	51.5	132.5	-72.45	-3,093.0	535.1	679.6	503.6	175.95	3.862	
9,300.0	6,803.7	6,625.0	6,625.0	53.4	132.5	-72.45	-3,093.0	535.1	603.1	425.4	177.73	3.394	
9,400.0	6,803.7	6,625.0	6,625.0	55.2	132.5	-72.45	-3,093.0	535.1	534.5	355.0	179.50	2.978	
9,500.0	6,803.7	6,625.0	6,625.0	57.1	132.5	-72.45	-3,093.0	535.1	477.1	295.8	181.28	2.632	
9,600.0	6,803.7	6,625.0	6,625.0	58.9	132.5	-72.45	-3,093.0	535.1	435.4	252.3	183.06	2.378	
9,700.0	6,803.7	6,625.0	6,625.0	60.8	132.5	-72.45	-3,093.0	535.1	414.1	229.3	184.85	2.240	
9,740.4	6,803.7	6,625.0	6,625.0	61.6	132.5	-72.45	-3,093.0	535.1	412.1	226.6	185.58	2.221	CC, ES, SF
9,800.0	6,803.8	6,625.0	6,625.0	62.7	132.5	-72.45	-3,093.0	535.1	416.4	229.8	186.64	2.231	
9,900.0	6,803.8	6,625.0	6,625.0	64.5	132.5	-72.45	-3,093.0	535.1	442.0	253.5	188.44	2.345	
10,000.0	6,803.8	6,625.0	6,625.0	66.4	132.5	-72.45	-3,093.0	535.1	487.1	296.9	190.24	2.561	
10,100.0	6,803.8	6,625.0	6,625.0	68.3	132.5	-72.45	-3,093.0	535.1	547.0	355.0	192.04	2.848	
10,200.0	6,803.8	6,625.0	6,625.0	70.2	132.5	-72.45	-3,093.0	535.1	617.4	423.5	193.84	3.185	
10,300.0	6,803.8	6,625.0	6,625.0	72.0	132.5	-72.45	-3,093.0	535.1	695.0	499.4	195.64	3.552	
10,400.0	6,803.9	6,625.0	6,625.0	73.9	132.5	-72.45	-3,093.0	535.1	777.8	580.4	197.45	3.939	
10,500.0	6,803.9	6,625.0	6,625.0	75.8	132.5	-72.45	-3,093.0	535.1	864.2	665.0	199.26	4.337	
10,600.0	6,803.9	6,625.0	6,625.0	77.7	132.5	-72.45	-3,093.0	535.1	953.3	752.3	201.07	4.741	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 44-34 (Exist) - Wellbore #1 - Wellbore #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 100-NS-GYRO-MS													<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,200.0	6,803.8	6,749.5	6,747.2	70.2	12.5	-89.09	-4,385.8	537.7	922.3	839.7	82.64	11.161		
10,300.0	6,803.8	6,750.0	6,747.7	72.0	12.5	-89.17	-4,385.8	537.7	833.1	748.6	84.52	9.857		
10,400.0	6,803.9	6,750.6	6,748.3	73.9	12.5	-89.25	-4,385.8	537.7	746.6	660.2	86.40	8.641		
10,500.0	6,803.9	6,751.1	6,748.9	75.8	12.5	-89.33	-4,385.8	537.7	663.9	575.6	88.29	7.520		
10,600.0	6,803.9	6,751.7	6,749.4	77.7	12.5	-89.41	-4,385.8	537.7	586.6	496.5	90.17	6.506		
10,700.0	6,803.9	6,752.3	6,750.0	79.6	12.5	-89.49	-4,385.8	537.7	517.2	425.2	92.06	5.618		
10,800.0	6,803.9	6,752.8	6,750.5	81.5	12.5	-89.58	-4,385.8	537.7	459.2	365.3	93.95	4.888		
10,900.0	6,803.9	6,753.4	6,751.1	83.3	12.5	-89.66	-4,385.8	537.7	417.4	321.6	95.84	4.355		
11,000.0	6,804.0	6,753.9	6,751.7	85.2	12.5	-89.74	-4,385.8	537.7	397.0	299.2	97.73	4.062		
11,033.2	6,804.0	6,754.1	6,751.8	85.9	12.5	-89.76	-4,385.8	537.7	395.6	297.2	98.36	4.022 CC, ES, SF		
11,100.0	6,804.0	6,754.5	6,752.2	87.1	12.5	-89.82	-4,385.8	537.7	401.2	301.6	99.63	4.027		
11,200.0	6,804.0	6,755.1	6,752.8	89.0	12.5	-89.90	-4,385.8	537.7	429.3	327.8	101.52	4.229		
11,220.2	6,804.0	6,755.2	6,752.9	89.4	12.5	-89.92	-4,385.8	537.7	437.5	335.6	101.90	4.294		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<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: 100-NS-GYRO-MS														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
9,500.0	6,803.7	6,753.8	6,752.5	57.1	11.7	90.25	-3,792.2	-109.2	972.7	903.9	68.78	14.143					
9,600.0	6,803.7	6,753.8	6,752.4	58.9	11.7	90.25	-3,792.2	-109.2	876.5	805.8	70.63	12.408					
9,700.0	6,803.7	6,753.7	6,752.4	60.8	11.7	90.24	-3,792.2	-109.2	781.2	708.7	72.50	10.775					
9,800.0	6,803.8	6,753.7	6,752.4	62.7	11.7	90.24	-3,792.2	-109.2	687.3	612.9	74.36	9.242					
9,900.0	6,803.8	6,753.7	6,752.4	64.5	11.7	90.23	-3,792.2	-109.2	595.3	519.1	76.23	7.809					
10,000.0	6,803.8	6,753.7	6,752.4	66.4	11.7	90.23	-3,792.2	-109.2	506.4	428.3	78.10	6.484					
10,100.0	6,803.8	6,753.7	6,752.3	68.3	11.7	90.22	-3,792.2	-109.2	422.5	342.6	79.98	5.283					
10,200.0	6,803.8	6,753.6	6,752.3	70.2	11.7	90.22	-3,792.2	-109.2	347.3	265.4	81.85	4.243					
10,300.0	6,803.8	6,753.6	6,752.3	72.0	11.7	90.22	-3,792.2	-109.2	287.5	203.8	83.73	3.434					
10,400.0	6,803.9	6,753.6	6,752.3	73.9	11.7	90.21	-3,792.2	-109.2	254.5	168.9	85.61	2.972					
10,439.6	6,803.9	6,753.6	6,752.3	74.7	11.7	90.21	-3,792.2	-109.2	251.4	165.0	86.36	2.911 CC, ES, SF					
10,500.0	6,803.9	6,753.6	6,752.3	75.8	11.7	90.21	-3,792.2	-109.2	258.5	171.0	87.50	2.954					
10,600.0	6,803.9	6,753.6	6,752.2	77.7	11.7	90.20	-3,792.2	-109.2	298.2	208.8	89.38	3.336					
10,700.0	6,803.9	6,753.6	6,752.2	79.6	11.7	90.20	-3,792.2	-109.2	361.9	270.6	91.27	3.965					
10,800.0	6,803.9	6,753.5	6,752.2	81.5	11.7	90.19	-3,792.2	-109.2	439.4	346.2	93.16	4.716					
10,900.0	6,803.9	6,753.5	6,752.2	83.3	11.7	90.19	-3,792.2	-109.2	524.5	429.5	95.05	5.518					
11,000.0	6,804.0	6,753.5	6,752.2	85.2	11.7	90.18	-3,792.2	-109.2	614.2	517.2	96.94	6.335					
11,100.0	6,804.0	6,753.5	6,752.2	87.1	11.7	90.18	-3,792.2	-109.2	706.6	607.7	98.83	7.149					
11,200.0	6,804.0	6,753.5	6,752.1	89.0	11.7	90.18	-3,792.2	-109.2	800.8	700.1	100.73	7.951					
11,220.2	6,804.0	6,753.4	6,752.1	89.4	11.7	90.17	-3,792.2	-109.2	820.0	718.9	101.10	8.110					

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden (Existing) Pad Sec.34-T5N-R64W - Gamewell 34-3 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	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	
0.0	0.0	0.0	0.0	0.0	0.0	132.87	-455.4	490.5	669.3					
100.0	100.0	96.7	96.7	0.1	0.1	132.83	-455.0	491.0	669.4	669.2	0.24	2,778.165		
200.0	200.0	200.0	200.0	0.3	0.4	132.75	-454.4	491.6	669.4	668.7	0.73	921.768		
286.2	286.2	284.8	284.7	0.5	0.6	132.68	-453.8	492.1	669.3	668.2	1.14	586.716		
300.0	300.0	298.3	298.3	0.6	0.6	132.67	-453.6	492.2	669.3	668.1	1.21	554.583		
400.0	400.0	397.6	397.5	0.8	0.9	132.59	-453.0	492.8	669.4	667.7	1.69	395.924		
500.0	500.0	497.5	497.4	1.0	1.2	132.54	-452.7	493.3	669.6	667.4	2.18	307.664		
600.0	600.0	593.4	593.4	1.2	1.4	132.48	-452.4	494.2	670.0	667.4	2.65	253.277		
700.0	700.0	693.5	693.5	1.5	1.7	132.39	-452.2	495.4	670.8	667.7	3.12	215.015		
800.0	800.0	790.0	790.0	1.7	1.9	132.31	-452.2	496.8	671.8	668.2	3.58	187.566		
900.0	900.0	886.8	886.7	1.9	2.1	132.22	-452.4	498.6	673.3	669.3	4.04	166.720		
1,000.0	1,000.0	986.7	986.6	2.1	2.4	132.12	-452.8	500.6	675.1	670.6	4.50	149.980		
1,100.0	1,100.0	1,085.0	1,084.9	2.4	2.6	132.04	-453.3	502.6	677.0	672.0	4.96	136.466		
1,200.0	1,200.0	1,185.2	1,185.0	2.6	2.8	131.98	-454.1	504.6	679.0	673.6	5.42	125.337		
1,300.0	1,300.0	1,284.1	1,284.0	2.8	3.1	131.96	-455.2	506.3	681.0	675.2	5.86	116.267		
1,400.0	1,400.0	1,382.8	1,382.7	3.0	3.3	131.95	-456.6	508.0	683.2	676.9	6.30	108.518		
1,500.0	1,500.0	1,485.7	1,485.6	3.3	3.5	131.95	-458.1	509.7	685.4	678.7	6.75	101.574		
1,600.0	1,600.0	1,585.9	1,585.7	3.5	3.7	131.97	-459.5	510.9	687.2	680.1	7.18	95.670		
1,700.0	1,700.0	1,686.6	1,686.4	3.7	3.9	132.00	-461.0	512.0	689.1	681.4	7.62	90.374		
1,800.0	1,800.0	1,790.7	1,790.4	3.9	4.2	132.00	-462.0	513.2	690.6	682.5	8.10	85.278		
1,900.0	1,900.0	1,893.7	1,893.4	4.2	4.4	131.96	-462.3	514.2	691.5	682.9	8.59	80.545		
2,000.0	2,000.0	1,998.7	1,998.4	4.4	4.7	131.88	-461.9	515.1	691.9	682.8	9.06	76.383		
2,100.0	2,100.0	2,097.2	2,096.9	4.6	4.9	131.78	-461.0	516.0	692.0	682.5	9.50	72.849		
2,200.0	2,200.0	2,202.7	2,202.4	4.8	5.1	131.58	-459.1	517.5	691.9	681.9	9.95	69.544		
2,300.0	2,300.0	2,312.5	2,312.1	5.1	5.3	131.29	-455.5	518.7	690.5	680.1	10.37	66.578		
2,400.0	2,400.0	2,413.8	2,413.3	5.3	5.5	130.98	-451.4	519.6	688.5	677.7	10.77	63.940		
2,500.0	2,500.0	2,517.4	2,516.9	5.5	5.7	130.68	-446.9	520.0	686.0	674.8	11.17	61.437		
2,600.0	2,600.0	2,615.0	2,614.3	5.7	5.8	89.31	-442.8	520.4	683.5	671.9	11.56	59.140		
2,700.0	2,699.8	2,715.9	2,715.2	5.9	6.0	89.49	-438.4	521.0	681.0	669.1	11.96	56.949		
2,800.0	2,799.5	2,818.5	2,817.7	6.2	6.2	90.00	-434.1	521.2	678.3	666.0	12.36	54.864		
2,900.0	2,899.0	2,922.2	2,921.2	6.4	6.4	90.56	-429.3	520.9	675.1	662.3	12.77	52.857		
3,000.0	2,998.5	3,020.9	3,019.8	6.6	6.6	91.08	-424.4	520.6	671.7	658.5	13.18	50.965		
3,100.0	3,098.1	3,116.9	3,115.8	6.9	6.7	91.66	-420.6	520.1	668.8	655.3	13.58	49.244		
3,200.0	3,197.6	3,217.9	3,216.7	7.1	6.9	92.39	-417.7	518.7	666.2	652.2	13.97	47.691		
3,300.0	3,297.1	3,317.8	3,316.6	7.3	7.0	93.23	-415.6	516.4	663.5	649.2	14.32	46.321		
3,400.0	3,396.7	3,417.3	3,416.0	7.6	7.1	94.08	-413.5	513.9	660.8	646.1	14.68	45.006		
3,500.0	3,496.2	3,509.3	3,508.0	7.8	7.2	94.83	-411.6	512.4	659.0	644.0	15.06	43.754		
3,600.0	3,595.7	3,607.4	3,606.1	8.1	7.4	95.64	-410.2	511.2	658.0	642.5	15.46	42.575		
3,700.0	3,695.3	3,706.3	3,704.9	8.3	7.5	96.49	-409.1	509.8	657.3	641.4	15.84	41.506		
3,800.0	3,794.8	3,809.6	3,808.3	8.6	7.6	97.41	-407.9	508.1	656.4	640.2	16.22	40.462		
3,900.0	3,894.3	3,911.4	3,910.0	8.9	7.8	98.35	-406.8	505.6	655.3	638.7	16.61	39.463		
4,000.0	3,993.9	4,013.3	4,011.9	9.1	7.9	99.33	-405.5	502.6	653.9	637.0	16.99	38.490		
4,100.0	4,093.4	4,112.2	4,110.7	9.4	8.0	100.29	-404.2	499.6	652.7	635.3	17.38	37.551		
4,200.0	4,192.9	4,212.3	4,210.7	9.6	8.2	101.26	-402.9	496.6	651.6	633.8	17.78	36.644		
4,300.0	4,292.5	4,314.1	4,312.5	9.9	8.3	102.26	-401.4	493.3	650.4	632.2	18.19	35.752		
4,400.0	4,392.0	4,414.3	4,412.6	10.2	8.5	103.25	-399.7	489.9	649.2	630.6	18.61	34.889		
4,500.0	4,491.5	4,521.0	4,519.2	10.4	8.6	104.32	-397.6	485.8	647.7	628.6	19.04	34.013		
4,600.0	4,591.1	4,634.0	4,631.9	10.7	8.8	105.55	-394.1	479.4	644.3	624.8	19.50	33.049		
4,700.0	4,690.6	4,735.2	4,732.8	11.0	9.0	106.71	-390.3	472.7	640.3	620.3	19.94	32.117		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden (Existing) Pad Sec.34-T5N-R64W - Gamewell 34-3 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error: 0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,800.0	4,790.2	4,834.6	4,831.9	11.2	9.2	107.75	-386.5	465.9	636.0	615.6	20.36	31.244	
4,900.0	4,890.0	4,930.1	4,927.2	11.4	9.4	108.39	-382.7	460.0	631.2	610.4	20.72	30.455	
5,000.0	4,990.0	5,020.8	5,017.8	11.6	9.6	108.65	-379.4	455.8	626.3	605.3	21.07	29.719	
5,100.0	5,090.0	5,107.5	5,104.4	11.8	9.7	150.02	-377.2	453.3	622.8	601.3	21.44	29.046	
5,200.0	5,190.0	5,200.0	5,196.9	12.0	10.0	150.01	-375.7	452.5	620.9	599.0	21.86	28.399	
5,288.2	5,278.2	5,279.9	5,276.8	12.2	10.1	149.91	-374.7	453.2	620.3	598.1	22.22	27.910	
5,300.0	5,290.0	5,290.6	5,287.5	12.2	10.2	149.89	-374.6	453.4	620.3	598.0	22.27	27.849	
5,400.0	5,390.0	5,396.0	5,392.8	12.4	10.4	149.69	-373.4	455.2	620.2	597.4	22.71	27.303	
5,462.7	5,452.7	5,454.4	5,451.2	12.5	10.5	149.60	-372.7	455.9	619.9	596.9	22.97	26.990	
5,500.0	5,490.0	5,488.8	5,485.6	12.6	10.6	149.55	-372.5	456.4	620.0	596.9	23.12	26.818	
5,600.0	5,590.0	5,588.8	5,585.6	12.8	10.8	149.41	-372.2	458.0	620.5	597.0	23.52	26.379	
5,700.0	5,690.0	5,687.4	5,684.2	13.0	11.0	149.25	-371.7	459.8	621.1	597.2	23.93	25.954	
5,800.0	5,790.0	5,786.1	5,782.8	13.2	11.1	149.08	-371.5	461.8	621.9	597.6	24.33	25.559	
5,900.0	5,890.0	5,887.5	5,884.2	13.5	11.3	148.90	-371.2	463.9	622.7	598.0	24.74	25.168	
6,000.0	5,990.0	5,982.8	5,979.5	13.7	11.5	148.72	-371.0	466.0	623.7	598.6	25.14	24.811	
6,100.0	6,090.0	6,081.3	6,078.0	13.9	11.7	-31.58	-371.2	468.7	623.9	598.4	25.47	24.500	
6,200.0	6,189.0	6,184.1	6,180.7	14.0	11.9	-32.88	-371.1	471.7	614.2	588.7	25.50	24.085	
6,300.0	6,285.5	6,275.9	6,272.5	14.1	12.1	-35.28	-370.9	474.4	593.9	568.6	25.28	23.489	
6,400.0	6,377.8	6,365.8	6,362.3	14.2	12.3	-39.11	-370.9	478.0	564.7	539.8	24.95	22.635	
6,500.0	6,464.3	6,447.4	6,443.9	14.3	12.4	-44.43	-371.0	481.6	527.9	503.2	24.69	21.379	
6,600.0	6,543.5	6,522.2	6,518.5	14.4	12.6	-51.46	-371.6	485.7	486.5	461.7	24.80	19.612	
6,700.0	6,614.1	6,593.7	6,589.9	14.6	12.7	-60.40	-372.5	489.8	443.0	417.5	25.54	17.346	
6,800.0	6,674.9	6,655.9	6,652.0	15.0	12.8	-70.25	-373.1	493.3	402.2	375.4	26.77	15.022	
6,900.0	6,724.8	6,705.7	6,701.7	15.6	12.9	-79.24	-373.1	496.2	370.9	342.9	28.07	13.216	
7,000.0	6,763.0	6,743.3	6,739.2	16.3	13.0	-85.78	-373.2	498.6	357.4	328.2	29.19	12.246	
7,009.4	6,765.9	6,746.2	6,742.1	16.4	13.0	-86.24	-373.2	498.7	357.3	328.0	29.29	12.198 CC, ES	
7,100.0	6,788.8	6,769.3	6,765.1	17.3	13.0	-89.02	-373.3	500.2	367.5	337.3	30.23	12.158 SF	
7,200.0	6,801.7	6,782.9	6,778.8	18.4	13.1	-88.43	-373.4	501.1	401.7	370.4	31.35	12.812	
7,300.0	6,803.3	6,785.3	6,781.2	19.6	13.1	-86.72	-373.4	501.2	455.3	422.7	32.56	13.984	
7,400.0	6,803.3	6,786.2	6,782.0	20.9	13.1	-86.85	-373.4	501.3	522.6	488.7	33.88	15.426	
7,500.0	6,803.4	6,787.0	6,782.9	22.3	13.1	-86.98	-373.4	501.3	599.1	563.8	35.29	16.978	
7,600.0	6,803.4	6,787.9	6,783.7	23.8	13.1	-87.12	-373.4	501.4	681.7	645.0	36.77	18.542	
7,700.0	6,803.4	6,788.7	6,784.6	25.3	13.1	-87.26	-373.4	501.4	768.5	730.2	38.31	20.061	
7,800.0	6,803.4	6,789.7	6,785.5	26.9	13.1	-87.41	-373.4	501.5	858.2	818.3	39.90	21.508	
7,900.0	6,803.4	6,790.6	6,786.4	28.5	13.1	-87.56	-373.4	501.5	949.9	908.3	41.53	22.871	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Suden (Existing) Pad Sec.34-T5N-R64W - Gamewell 34-4 (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)				
7,500.0	6,803.4	6,783.0	6,782.2	22.3	12.3	-86.82	-1,733.0	498.1	949.9	915.4	34.51	27.522			
7,600.0	6,803.4	6,784.7	6,783.9	23.8	12.3	-87.09	-1,733.1	498.1	858.0	822.0	36.00	23.834			
7,700.0	6,803.4	6,786.3	6,785.6	25.3	12.3	-87.36	-1,733.1	498.2	768.2	730.6	37.54	20.461			
7,800.0	6,803.4	6,788.0	6,787.2	26.9	12.3	-87.62	-1,733.1	498.2	681.1	642.0	39.14	17.404			
7,900.0	6,803.4	6,789.7	6,788.9	28.5	12.3	-87.89	-1,733.1	498.2	598.2	557.4	40.77	14.672			
8,000.0	6,803.4	6,791.3	6,790.6	30.2	12.3	-88.16	-1,733.2	498.2	521.3	478.8	42.44	12.283			
8,100.0	6,803.5	6,793.0	6,792.2	31.9	12.3	-88.43	-1,733.2	498.3	453.5	409.3	44.14	10.274			
8,200.0	6,803.5	6,794.7	6,793.9	33.6	12.3	-88.70	-1,733.2	498.3	399.4	353.5	45.86	8.709			
8,300.0	6,803.5	6,796.3	6,795.6	35.3	12.3	-88.97	-1,733.2	498.3	365.2	317.6	47.60	7.672			
8,380.7	6,803.5	6,797.7	6,796.9	36.7	12.3	-89.18	-1,733.3	498.3	356.2	307.2	49.02	7.266 CC, ES			
8,400.0	6,803.5	6,798.0	6,797.2	37.1	12.3	-89.23	-1,733.3	498.3	356.7	307.3	49.36	7.227 SF			
8,500.0	6,803.5	6,799.7	6,798.9	38.9	12.3	-89.50	-1,733.3	498.4	375.6	324.5	51.13	7.346			
8,600.0	6,803.5	6,801.4	6,800.6	40.6	12.3	-89.77	-1,733.3	498.4	418.3	365.4	52.92	7.904			
8,700.0	6,803.6	6,803.0	6,802.3	42.4	12.3	-90.04	-1,733.4	498.4	478.3	423.6	54.72	8.742			
8,800.0	6,803.6	6,804.7	6,803.9	44.2	12.3	-90.31	-1,733.4	498.4	550.1	493.6	56.53	9.732			
8,900.0	6,803.6	6,806.4	6,805.6	46.1	12.3	-90.58	-1,733.4	498.4	629.7	571.3	58.34	10.793			
9,000.0	6,803.6	6,808.0	6,807.3	47.9	12.3	-90.84	-1,733.4	498.5	714.4	654.2	60.16	11.873			
9,100.0	6,803.6	6,809.7	6,808.9	49.7	12.4	-91.11	-1,733.5	498.5	802.6	740.6	61.99	12.946			
9,200.0	6,803.6	6,811.4	6,810.6	51.5	12.4	-91.38	-1,733.5	498.5	893.3	829.5	63.83	13.996			
9,300.0	6,803.7	6,813.0	6,812.3	53.4	12.4	-91.65	-1,733.5	498.5	985.8	920.1	65.66	15.013			



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden (Existing) Pad Sec.34-T5N-R64W - Gamewell 5 (Exist) - Wellbore #1 - Wellbore #1														Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Reference	Offset	Reference	Offset	(ft)	(ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
6,800.0	6,674.9	6,645.2	6,642.6	15.0	13.0	31.41	-1,099.6	-174.0	974.3	953.3	21.04	46.319			
6,900.0	6,724.8	6,695.5	6,692.9	15.6	13.1	40.15	-1,099.9	-174.5	893.3	871.2	22.13	40.365			
7,000.0	6,763.0	6,734.2	6,731.5	16.3	13.2	52.32	-1,100.1	-174.9	807.9	783.0	24.91	32.441			
7,100.0	6,788.8	6,760.5	6,757.8	17.3	13.3	67.42	-1,100.2	-175.1	720.4	691.8	28.54	25.239			
7,200.0	6,801.7	6,773.9	6,771.3	18.4	13.3	82.59	-1,100.3	-175.3	633.1	601.7	31.32	20.210			
7,300.0	6,803.3	6,776.1	6,773.4	19.6	13.3	89.01	-1,100.3	-175.3	548.9	516.1	32.77	16.749			
7,400.0	6,803.3	6,776.6	6,773.9	20.9	13.3	89.11	-1,100.3	-175.3	470.9	436.8	34.09	13.812			
7,500.0	6,803.4	6,777.1	6,774.5	22.3	13.3	89.20	-1,100.3	-175.3	402.7	367.2	35.50	11.344			
7,600.0	6,803.4	6,777.7	6,775.0	23.8	13.3	89.30	-1,100.3	-175.3	350.2	313.2	36.98	9.470			
7,700.0	6,803.4	6,778.2	6,775.6	25.3	13.3	89.40	-1,100.3	-175.3	321.1	282.6	38.52	8.335			
7,747.7	6,803.4	6,778.5	6,775.8	26.1	13.3	89.44	-1,100.3	-175.3	317.5	278.2	39.28	8.083 CC, ES			
7,800.0	6,803.4	6,778.7	6,776.1	26.9	13.3	89.50	-1,100.3	-175.3	321.8	281.7	40.11	8.022 SF			
7,900.0	6,803.4	6,779.3	6,776.6	28.5	13.3	89.59	-1,100.3	-175.3	352.1	310.4	41.74	8.436			
8,000.0	6,803.4	6,779.8	6,777.2	30.2	13.3	89.69	-1,100.3	-175.3	405.5	362.1	43.41	9.342			
8,100.0	6,803.5	6,780.4	6,777.7	31.9	13.3	89.79	-1,100.3	-175.3	474.2	429.1	45.10	10.515			
8,200.0	6,803.5	6,780.9	6,778.2	33.6	13.3	89.88	-1,100.3	-175.3	552.6	505.8	46.82	11.803			
8,300.0	6,803.5	6,781.4	6,778.8	35.3	13.3	89.98	-1,100.3	-175.3	637.0	588.5	48.56	13.119			
8,400.0	6,803.5	6,782.0	6,779.3	37.1	13.3	90.08	-1,100.3	-175.3	725.4	675.1	50.32	14.418			
8,500.0	6,803.5	6,782.5	6,779.9	38.9	13.3	90.17	-1,100.3	-175.4	816.5	764.4	52.09	15.676			
8,600.0	6,803.5	6,783.0	6,780.4	40.6	13.3	90.27	-1,100.3	-175.4	909.5	855.6	53.87	16.881			



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34R-HZ Pad Sec.34-T5N-R64W - Suden 34R-203 - Wellbore #1 - Plan #2 (7-31-14)														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 (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	-103.19	-120.2	-512.8	526.7						
100.0	100.0	101.0	101.0	0.1	0.1	-103.19	-120.2	-512.8	526.7	526.4	0.23	2,319.984			
200.0	200.0	201.0	201.0	0.3	0.3	-103.19	-120.2	-512.8	526.7	526.0	0.68	778.466			
300.0	300.0	301.0	301.0	0.6	0.6	-103.19	-120.2	-512.8	526.7	525.5	1.13	467.701			
400.0	400.0	401.0	401.0	0.8	0.8	-103.19	-120.2	-512.8	526.7	525.1	1.58	334.263			
500.0	500.0	501.0	501.0	1.0	1.0	-103.19	-120.2	-512.8	526.7	524.6	2.03	260.065			
600.0	600.0	601.0	601.0	1.2	1.2	-103.19	-120.2	-512.8	526.7	524.2	2.47	212.823			
700.0	700.0	701.0	701.0	1.5	1.5	-103.19	-120.2	-512.8	526.7	523.7	2.92	180.106			
800.0	800.0	801.0	801.0	1.7	1.7	-103.19	-120.2	-512.8	526.7	523.3	3.37	156.108			
900.0	900.0	901.0	901.0	1.9	1.9	-103.19	-120.2	-512.8	526.7	522.8	3.82	137.753			
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-103.19	-120.2	-512.8	526.7	522.4	4.27	123.261			
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	-103.19	-120.2	-512.8	526.7	521.9	4.72	111.527			
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-103.19	-120.2	-512.8	526.7	521.5	5.17	101.833			
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-103.19	-120.2	-512.8	526.7	521.0	5.62	93.690			
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	-103.19	-120.2	-512.8	526.7	520.6	6.07	86.752			
1,500.0	1,500.0	1,501.2	1,501.2	3.3	3.3	-103.19	-120.2	-512.8	526.7	520.1	6.52	80.767			
1,600.0	1,600.0	1,619.4	1,619.4	3.5	3.5	-103.05	-118.4	-511.0	524.9	517.9	7.01	74.912			
1,700.0	1,700.0	1,737.2	1,736.9	3.7	3.8	-102.61	-113.1	-505.9	519.7	512.2	7.49	69.368			
1,800.0	1,800.0	1,853.4	1,852.5	3.9	4.1	-101.87	-104.6	-497.6	511.1	503.1	7.98	64.067			
1,900.0	1,900.0	1,952.7	1,951.0	4.2	4.3	-101.09	-95.9	-489.3	501.1	492.6	8.42	59.486			
2,000.0	2,000.0	2,051.9	2,049.6	4.4	4.5	-100.28	-87.2	-480.9	491.1	482.3	8.87	55.380			
2,100.0	2,100.0	2,151.2	2,148.1	4.6	4.8	-99.44	-78.6	-472.5	481.3	472.0	9.32	51.669			
2,200.0	2,200.0	2,250.4	2,246.6	4.8	5.1	-98.57	-69.9	-464.1	471.6	461.8	9.76	48.303			
2,300.0	2,300.0	2,349.7	2,345.1	5.1	5.3	-97.65	-61.3	-455.8	462.0	451.7	10.21	45.239			
2,400.0	2,400.0	2,449.0	2,443.7	5.3	5.6	-96.70	-52.6	-447.4	452.5	441.8	10.66	42.442			
2,500.0	2,500.0	2,548.2	2,542.2	5.5	5.9	-95.71	-43.9	-439.0	443.1	432.0	11.11	39.879			
2,600.0	2,600.0	2,647.7	2,640.9	5.7	6.2	-136.23	-35.3	-430.6	435.1	423.5	11.67	37.286			
2,700.0	2,699.8	2,747.4	2,739.9	5.9	6.5	-135.72	-26.5	-422.2	429.8	417.6	12.14	35.413			
2,800.0	2,799.5	2,847.4	2,839.1	6.2	6.7	-135.48	-17.8	-413.8	426.8	414.2	12.60	33.873			
2,900.0	2,899.0	2,947.3	2,938.3	6.4	7.0	-135.30	-9.1	-405.3	424.6	411.6	13.08	32.467			
3,000.0	2,998.5	3,047.3	3,037.6	6.6	7.3	-135.12	-0.4	-396.9	422.5	408.9	13.56	31.149			
3,100.0	3,098.1	3,147.3	3,136.8	6.9	7.6	-134.94	8.3	-388.4	420.3	406.2	14.05	29.913			
3,200.0	3,197.6	3,247.2	3,236.0	7.1	7.9	-134.75	17.1	-380.0	418.1	403.6	14.54	28.753			
3,300.0	3,297.1	3,347.2	3,335.3	7.3	8.2	-134.57	25.8	-371.6	416.0	400.9	15.04	27.661			
3,400.0	3,396.7	3,447.2	3,434.5	7.6	8.5	-134.38	34.5	-363.1	413.8	398.3	15.54	26.634			
3,500.0	3,496.2	3,547.1	3,533.7	7.8	8.8	-134.19	43.2	-354.7	411.6	395.6	16.04	25.666			
3,600.0	3,595.7	3,647.1	3,632.9	8.1	9.1	-134.00	52.0	-346.3	409.5	392.9	16.54	24.752			
3,700.0	3,695.3	3,747.1	3,732.2	8.3	9.4	-133.80	60.7	-337.8	407.3	390.3	17.05	23.889			
3,800.0	3,794.8	3,847.0	3,831.4	8.6	9.7	-133.61	69.4	-329.4	405.2	387.6	17.56	23.072			
3,900.0	3,894.3	3,947.0	3,930.6	8.9	10.0	-133.41	78.1	-320.9	403.1	385.0	18.07	22.299			
4,000.0	3,993.9	4,047.0	4,029.8	9.1	10.3	-133.21	86.9	-312.5	400.9	382.3	18.59	21.566			
4,100.0	4,093.4	4,146.9	4,129.1	9.4	10.6	-133.00	95.6	-304.1	398.8	379.7	19.11	20.870			
4,200.0	4,192.9	4,246.9	4,228.3	9.6	11.0	-132.80	104.3	-295.6	396.7	377.0	19.63	20.208			
4,300.0	4,292.5	4,346.9	4,327.5	9.9	11.3	-132.59	113.0	-287.2	394.6	374.4	20.15	19.579			
4,400.0	4,392.0	4,446.8	4,426.8	10.2	11.6	-132.38	121.7	-278.8	392.4	371.8	20.68	18.980			
4,500.0	4,491.5	4,546.8	4,526.0	10.4	11.9	-132.17	130.5	-270.3	390.3	369.1	21.20	18.410			
4,600.0	4,591.1	4,646.8	4,625.2	10.7	12.2	-131.96	139.2	-261.9	388.2	366.5	21.73	17.865			
4,700.0	4,690.6	4,740.4	4,718.3	11.0	12.4	-131.83	146.8	-254.5	386.7	364.5	22.21	17.414			
4,730.5	4,721.0	4,768.3	4,746.1	11.0	12.5	-131.84	148.7	-252.7	386.6	364.3	22.34	17.308 CC			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34R-HZ Pad Sec.34-T5N-R64W - Suden 34R-203 - Wellbore #1 - Plan #2 (7-31-14)													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 (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,800.0	4,790.2	4,831.8	4,809.3	11.2	12.6	-131.94	152.2	-249.3	386.9	364.2	22.62	17.099		
4,900.0	4,890.0	4,923.1	4,900.5	11.4	12.8	-132.01	155.6	-246.1	387.0	364.0	22.98	16.841		
5,000.0	4,990.0	5,014.4	4,991.8	11.6	13.0	-132.05	156.8	-244.9	387.1	363.8	23.30	16.611		
5,100.0	5,090.0	5,113.6	5,091.0	11.8	13.1	-90.77	156.8	-244.9	387.1	363.4	23.67	16.352		
5,200.0	5,190.0	5,213.6	5,191.0	12.0	13.3	-90.77	156.8	-244.9	387.1	363.0	24.09	16.072		
5,300.0	5,290.0	5,313.6	5,291.0	12.2	13.5	-90.77	156.8	-244.9	387.1	362.6	24.50	15.801		
5,400.0	5,390.0	5,413.6	5,391.0	12.4	13.7	-90.77	156.8	-244.9	387.1	362.2	24.91	15.538		
5,500.0	5,490.0	5,513.6	5,491.0	12.6	13.9	-90.77	156.8	-244.9	387.1	361.8	25.33	15.283		
5,600.0	5,590.0	5,613.6	5,591.0	12.8	14.1	-90.77	156.8	-244.9	387.1	361.4	25.75	15.036		
5,700.0	5,690.0	5,713.6	5,691.0	13.0	14.3	-90.77	156.8	-244.9	387.1	360.9	26.16	14.796		
5,800.0	5,790.0	5,813.6	5,791.0	13.2	14.5	-90.77	156.8	-244.9	387.1	360.5	26.58	14.563		
5,900.0	5,890.0	5,913.6	5,891.0	13.5	14.6	-90.77	156.8	-244.9	387.1	360.1	27.00	14.336		
6,000.0	5,990.0	6,012.6	5,989.7	13.7	14.8	-91.56	151.4	-244.9	387.2	359.9	27.33	14.167		
6,100.0	6,090.0	6,108.9	6,084.4	13.9	14.8	86.06	134.1	-244.9	388.0	360.5	27.52	14.101		
6,200.0	6,189.0	6,202.9	6,174.0	14.0	14.9	83.54	105.7	-244.9	389.6	362.0	27.58	14.127		
6,300.0	6,285.5	6,295.2	6,257.9	14.1	14.9	81.17	67.5	-244.9	391.8	364.2	27.60	14.198		
6,400.0	6,377.8	6,385.9	6,335.3	14.2	14.8	78.97	20.3	-244.9	394.5	366.9	27.62	14.286		
6,500.0	6,464.3	6,475.1	6,405.4	14.3	14.8	76.97	-34.8	-244.9	397.5	369.8	27.69	14.357		
6,600.0	6,543.5	6,563.2	6,467.9	14.4	14.8	75.20	-96.8	-244.9	400.6	372.7	27.85	14.381		
6,700.0	6,614.1	6,650.0	6,522.1	14.6	14.8	73.67	-164.6	-244.9	403.5	375.3	28.17	14.324		
6,800.0	6,674.9	6,736.3	6,568.1	15.0	15.0	72.40	-237.6	-244.9	406.2	377.5	28.70	14.153		
6,900.0	6,724.8	6,821.9	6,605.1	15.6	15.4	71.39	-314.6	-244.9	408.5	379.0	29.48	13.856		
7,000.0	6,763.0	6,906.8	6,633.3	16.3	16.0	70.65	-394.8	-244.9	410.3	379.8	30.54	13.434		
7,100.0	6,788.8	6,991.5	6,652.2	17.3	16.8	70.18	-477.2	-244.9	411.5	379.6	31.90	12.901		
7,200.0	6,801.7	7,076.0	6,662.0	18.4	17.6	69.99	-561.1	-244.9	412.0	378.5	33.53	12.286		
7,300.0	6,803.3	7,166.1	6,663.0	19.6	18.6	69.94	-651.2	-244.9	412.1	376.6	35.54	11.595		
7,400.0	6,803.3	7,266.1	6,662.0	20.9	19.8	69.82	-751.2	-244.9	412.4	374.5	37.92	10.877		
7,500.0	6,803.4	7,366.1	6,661.1	22.3	21.2	69.69	-851.2	-244.9	412.8	372.3	40.47	10.199		
7,600.0	6,803.4	7,466.1	6,660.2	23.8	22.6	69.57	-951.2	-244.9	413.1	369.9	43.18	9.568		
7,700.0	6,803.4	7,566.1	6,659.2	25.3	24.1	69.45	-1,051.2	-244.9	413.5	367.5	46.00	8.988		
7,800.0	6,803.4	7,666.1	6,658.3	26.9	25.6	69.32	-1,151.2	-245.0	413.8	364.9	48.93	8.458		
7,900.0	6,803.4	7,766.1	6,657.3	28.5	27.2	69.20	-1,251.2	-245.0	414.1	362.2	51.93	7.975		
8,000.0	6,803.4	7,866.1	6,656.4	30.2	28.8	69.07	-1,351.2	-245.0	414.5	359.5	55.00	7.536		
8,100.0	6,803.5	7,966.1	6,655.4	31.9	30.5	68.95	-1,451.2	-245.0	414.8	356.7	58.13	7.137		
8,200.0	6,803.5	8,066.1	6,654.5	33.6	32.1	68.83	-1,551.1	-245.0	415.2	353.9	61.30	6.773		
8,300.0	6,803.5	8,166.1	6,653.6	35.3	33.9	68.70	-1,651.1	-245.0	415.6	351.0	64.51	6.441		
8,400.0	6,803.5	8,266.1	6,652.6	37.1	35.6	68.58	-1,751.1	-245.0	415.9	348.1	67.76	6.138		
8,500.0	6,803.5	8,366.1	6,651.7	38.9	37.3	68.46	-1,851.1	-245.0	416.3	345.2	71.03	5.861		
8,600.0	6,803.5	8,466.1	6,650.7	40.6	39.1	68.34	-1,951.1	-245.0	416.6	342.3	74.32	5.606		
8,700.0	6,803.6	8,566.1	6,649.8	42.4	40.9	68.21	-2,051.1	-245.0	417.0	339.4	77.63	5.371		
8,800.0	6,803.6	8,666.1	6,648.9	44.2	42.7	68.09	-2,151.1	-245.0	417.3	336.4	80.96	5.155		
8,900.0	6,803.6	8,766.0	6,647.9	46.1	44.5	67.97	-2,251.1	-245.0	417.7	333.4	84.30	4.955		
9,000.0	6,803.6	8,866.0	6,647.0	47.9	46.3	67.85	-2,351.1	-245.0	418.1	330.4	87.65	4.770		
9,100.0	6,803.6	8,966.0	6,646.0	49.7	48.1	67.73	-2,451.1	-245.0	418.4	327.4	91.01	4.598		
9,200.0	6,803.6	9,066.0	6,645.1	51.5	49.9	67.60	-2,551.1	-245.1	418.8	324.4	94.38	4.438		
9,300.0	6,803.7	9,166.0	6,644.1	53.4	51.8	67.48	-2,651.0	-245.1	419.2	321.4	97.75	4.288		
9,400.0	6,803.7	9,266.0	6,643.2	55.2	53.6	67.36	-2,751.0	-245.1	419.6	318.4	101.13	4.149		
9,500.0	6,803.7	9,366.0	6,642.3	57.1	55.5	67.24	-2,851.0	-245.1	419.9	315.4	104.51	4.018		
9,600.0	6,803.7	9,466.0	6,641.3	58.9	57.3	67.12	-2,951.0	-245.1	420.3	312.4	107.90	3.895		

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-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34R-HZ Pad Sec.34-T5N-R64W - Suden 34R-203 - Wellbore #1 - Plan #2 (7-31-14)													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	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,700.0	6,803.7	9,566.0	6,640.4	60.8	59.2	67.00	-3,051.0	-245.1	420.7	309.4	111.29	3.780		
9,800.0	6,803.8	9,666.0	6,639.4	62.7	61.0	66.88	-3,151.0	-245.1	421.1	306.4	114.67	3.672		
9,900.0	6,803.8	9,766.0	6,638.5	64.5	62.9	66.76	-3,251.0	-245.1	421.5	303.4	118.06	3.570		
10,000.0	6,803.8	9,866.0	6,637.5	66.4	64.8	66.64	-3,351.0	-245.1	421.8	300.4	121.45	3.473		
10,100.0	6,803.8	9,966.0	6,636.6	68.3	66.6	66.52	-3,451.0	-245.1	422.2	297.4	124.84	3.382		
10,200.0	6,803.8	10,066.0	6,635.7	70.2	68.5	66.40	-3,551.0	-245.1	422.6	294.4	128.23	3.296		
10,300.0	6,803.8	10,166.0	6,634.7	72.0	70.4	66.29	-3,651.0	-245.1	423.0	291.4	131.62	3.214		
10,400.0	6,803.9	10,266.0	6,633.8	73.9	72.3	66.17	-3,750.9	-245.1	423.4	288.4	135.01	3.136		
10,500.0	6,803.9	10,366.0	6,632.8	75.8	74.1	66.05	-3,850.9	-245.1	423.8	285.4	138.39	3.062		
10,600.0	6,803.9	10,466.0	6,631.9	77.7	76.0	65.93	-3,950.9	-245.1	424.2	282.4	141.78	2.992		
10,700.0	6,803.9	10,566.0	6,630.9	79.6	77.9	65.81	-4,050.9	-245.2	424.6	279.4	145.16	2.925		
10,800.0	6,803.9	10,666.0	6,630.0	81.5	79.8	65.69	-4,150.9	-245.2	425.0	276.5	148.54	2.861		
10,900.0	6,803.9	10,766.0	6,629.1	83.3	81.7	65.58	-4,250.9	-245.2	425.4	273.5	151.91	2.800		
11,000.0	6,804.0	10,866.0	6,628.1	85.2	83.6	65.46	-4,350.9	-245.2	425.8	270.5	155.28	2.742		
11,100.0	6,804.0	10,965.9	6,627.2	87.1	85.4	65.34	-4,450.9	-245.2	426.2	267.5	158.65	2.686		
11,200.0	6,804.0	11,065.9	6,626.2	89.0	87.3	65.23	-4,550.9	-245.2	426.6	264.6	162.02	2.633		
11,220.2	6,804.0	11,086.1	6,626.0	89.4	87.7	65.20	-4,571.0	-245.2	426.7	264.0	162.69	2.623 ES, SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34R-323 - Wellbore #1 - Plan #2 (7-01-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	89.99	0.0	30.7	30.7	30.7	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	89.99	0.0	30.7	30.7	30.4	0.23	135.033		
200.0	200.0	201.0	201.0	0.3	0.3	89.99	0.0	30.7	30.7	30.0	0.68	45.310		
300.0	300.0	301.0	301.0	0.6	0.6	89.99	0.0	30.7	30.7	29.5	1.13	27.222		
400.0	400.0	401.0	401.0	0.8	0.8	89.99	0.0	30.7	30.7	29.1	1.58	19.456		
500.0	500.0	501.0	501.0	1.0	1.0	89.99	0.0	30.7	30.7	28.6	2.03	15.137		
600.0	600.0	601.0	601.0	1.2	1.2	89.99	0.0	30.7	30.7	28.2	2.47	12.387		
700.0	700.0	701.0	701.0	1.5	1.5	89.99	0.0	30.7	30.7	27.7	2.92	10.483		
800.0	800.0	801.0	801.0	1.7	1.7	89.99	0.0	30.7	30.7	27.3	3.37	9.086		
900.0	900.0	901.0	901.0	1.9	1.9	89.99	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	89.99	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	89.99	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	89.99	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	89.99	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	89.99	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	89.99	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	89.99	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	88.72	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	85.61	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	6.3	44.7	45.3	37.5	7.83	5.789		
1,900.0	1,900.0	1,896.3	1,895.3	4.2	4.1	78.90	10.7	54.3	55.6	47.3	8.28	6.716		
2,000.0	2,000.0	1,995.8	1,994.1	4.4	4.4	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	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	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	73.21	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	32.3	102.4	107.9	97.4	10.56	10.220		
2,500.0	2,500.0	2,493.0	2,488.5	5.5	5.7	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	30.40	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	31.00	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	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	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	35.32	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	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	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	71.5	189.2	149.8	135.2	14.52	10.316		
3,400.0	3,396.7	3,391.7	3,382.1	7.6	8.1	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	41.92	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	84.5	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	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	93.3	237.5	164.6	147.7	16.91	9.733		
3,900.0	3,894.3	3,891.2	3,878.8	8.9	9.6	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	102.0	256.9	171.0	153.1	17.90	9.552		
4,100.0	4,093.4	4,091.0	4,077.5	9.4	10.2	48.36	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	110.7	276.2	177.6	158.7	18.91	9.394		
4,300.0	4,292.5	4,290.8	4,276.2	9.9	10.7	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	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	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	52.72	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	132.5	324.5	194.8	173.3	21.47	9.073		

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-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34R-323 - Wellbore #1 - Plan #2 (7-01-14)													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 (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,800.0	4,790.2	4,790.3	4,772.9	11.2	12.2	54.11	136.8	334.2	198.8	176.9	21.97	9.049		
4,900.0	4,890.0	4,890.1	4,872.1	11.4	12.5	54.00	141.2	343.8	204.8	182.4	22.40	9.142		
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	91.95	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	10.010		
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		
5,961.8	5,951.8	5,973.2	5,952.8	13.6	14.9	90.00	162.0	390.1	247.9	221.1	26.74	9.268		
6,000.0	5,990.0	6,011.4	5,991.0	13.7	15.0	90.10	161.6	390.1	247.9	221.0	26.90	9.214		
6,100.0	6,090.0	6,110.5	6,089.6	13.9	15.1	-88.02	151.8	390.1	248.0	220.7	27.30	9.086		
6,200.0	6,189.0	6,208.3	6,184.8	14.0	15.2	-85.82	129.8	390.1	248.5	220.9	27.58	9.011		
6,300.0	6,285.5	6,305.0	6,275.4	14.1	15.3	-83.72	96.2	390.1	249.4	221.6	27.79	8.974		
6,400.0	6,377.8	6,400.0	6,359.6	14.2	15.3	-81.76	52.4	390.1	250.5	222.5	27.95	8.963		
6,500.0	6,464.3	6,495.4	6,438.0	14.3	15.4	-79.92	-1.8	390.1	251.8	223.6	28.12	8.954		
6,600.0	6,543.5	6,589.2	6,508.0	14.4	15.6	-78.29	-64.3	390.1	253.2	224.8	28.38	8.920		
6,700.0	6,614.1	6,682.3	6,569.3	14.6	15.8	-76.86	-134.2	390.1	254.5	225.7	28.81	8.836		
6,800.0	6,674.9	6,774.8	6,621.4	15.0	16.1	-75.65	-210.6	390.1	255.9	226.4	29.50	8.674		
6,900.0	6,724.8	6,866.8	6,663.6	15.6	16.6	-74.66	-292.2	390.1	257.0	226.5	30.51	8.424		
7,000.0	6,763.0	6,958.3	6,695.6	16.3	17.3	-73.92	-377.9	390.1	258.0	226.1	31.89	8.089		
7,100.0	6,788.8	7,050.0	6,717.2	17.3	18.1	-73.43	-467.0	390.1	258.6	225.0	33.65	7.685		
7,200.0	6,801.7	7,140.7	6,727.9	18.4	19.1	-73.18	-557.0	390.1	258.9	223.2	35.75	7.242		
7,300.0	6,803.3	7,235.5	6,728.7	19.6	20.2	-73.04	-651.8	390.1	259.1	221.0	38.10	6.800		
7,400.0	6,803.3	7,335.5	6,727.7	20.9	21.5	-72.81	-751.8	390.1	259.4	218.8	40.62	6.388		
7,500.0	6,803.4	7,435.5	6,726.6	22.3	22.9	-72.59	-851.8	390.1	259.8	216.5	43.29	6.001		
7,600.0	6,803.4	7,535.5	6,725.5	23.8	24.3	-72.36	-951.7	390.1	260.1	214.0	46.09	5.644		
7,700.0	6,803.4	7,635.5	6,724.5	25.3	25.8	-72.13	-1,051.7	390.1	260.4	211.4	49.00	5.315		
7,800.0	6,803.4	7,735.5	6,723.4	26.9	27.4	-71.91	-1,151.7	390.1	260.8	208.8	51.99	5.016		
7,900.0	6,803.4	7,835.5	6,722.4	28.5	29.0	-71.68	-1,251.7	390.1	261.1	206.0	55.06	4.742		
8,000.0	6,803.4	7,935.5	6,721.3	30.2	30.6	-71.46	-1,351.7	390.1	261.4	203.3	58.18	4.494		
8,100.0	6,803.5	8,035.5	6,720.2	31.9	32.3	-71.23	-1,451.7	390.1	261.8	200.4	61.35	4.267		
8,200.0	6,803.5	8,135.5	6,719.2	33.6	34.0	-71.01	-1,551.7	390.1	262.1	197.6	64.56	4.060		
8,300.0	6,803.5	8,235.5	6,718.1	35.3	35.7	-70.78	-1,651.7	390.1	262.5	194.7	67.80	3.871		
8,400.0	6,803.5	8,335.5	6,717.0	37.1	37.4	-70.56	-1,751.7	390.1	262.9	191.8	71.07	3.698		
8,500.0	6,803.5	8,435.5	6,716.0	38.9	39.2	-70.34	-1,851.6	390.1	263.2	188.9	74.36	3.540		
8,600.0	6,803.5	8,535.4	6,714.9	40.6	41.0	-70.12	-1,951.6	390.1	263.6	185.9	77.67	3.394		
8,700.0	6,803.6	8,635.4	6,713.8	42.4	42.7	-69.90	-2,051.6	390.1	264.0	183.0	80.99	3.259		
8,800.0	6,803.6	8,735.4	6,712.8	44.2	44.5	-69.68	-2,151.6	390.1	264.3	180.0	84.32	3.135		
8,900.0	6,803.6	8,835.4	6,711.7	46.1	46.3	-69.46	-2,251.6	390.1	264.7	177.1	87.66	3.020		
9,000.0	6,803.6	8,935.4	6,710.6	47.9	48.1	-69.24	-2,351.6	390.1	265.1	174.1	91.01	2.913		
9,100.0	6,803.6	9,035.4	6,709.6	49.7	50.0	-69.02	-2,451.6	390.1	265.5	171.1	94.36	2.813		
9,200.0	6,803.6	9,135.4	6,708.5	51.5	51.8	-68.80	-2,551.6	390.1	265.9	168.2	97.72	2.721		
9,300.0	6,803.7	9,235.4	6,707.4	53.4	53.6	-68.59	-2,651.6	390.1	266.3	165.2	101.07	2.634		
9,400.0	6,803.7	9,335.4	6,706.4	55.2	55.5	-68.37	-2,751.5	390.1	266.7	162.2	104.43	2.554		
9,500.0	6,803.7	9,435.4	6,705.3	57.1	57.3	-68.15	-2,851.5	390.1	267.1	159.3	107.79	2.478		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34R-323 - Wellbore #1 - Plan #2 (7-01-14)													<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 (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,600.0	6,803.7	9,535.4	6,704.3	58.9	59.2	-67.94	-2,951.5	390.1	267.5	156.3	111.14	2.407		
9,700.0	6,803.7	9,635.4	6,703.2	60.8	61.0	-67.72	-3,051.5	390.1	267.9	153.4	114.49	2.340		
9,800.0	6,803.8	9,735.4	6,702.1	62.7	62.9	-67.51	-3,151.5	390.1	268.3	150.5	117.84	2.277		
9,900.0	6,803.8	9,835.4	6,701.1	64.5	64.7	-67.30	-3,251.5	390.1	268.7	147.5	121.19	2.217		
10,000.0	6,803.8	9,935.4	6,700.0	66.4	66.6	-67.08	-3,351.5	390.1	269.1	144.6	124.53	2.161		
10,100.0	6,803.8	10,035.4	6,698.9	68.3	68.5	-66.87	-3,451.5	390.1	269.6	141.7	127.86	2.108		
10,200.0	6,803.8	10,135.4	6,697.9	70.2	70.3	-66.66	-3,551.4	390.1	270.0	138.8	131.19	2.058		
10,300.0	6,803.8	10,235.3	6,696.8	72.0	72.2	-66.45	-3,651.4	390.1	270.4	135.9	134.52	2.010		
10,400.0	6,803.9	10,335.3	6,695.7	73.9	74.1	-66.24	-3,751.4	390.1	270.9	133.0	137.84	1.965		
10,500.0	6,803.9	10,435.3	6,694.7	75.8	76.0	-66.03	-3,851.4	390.1	271.3	130.1	141.15	1.922		
10,600.0	6,803.9	10,535.3	6,693.6	77.7	77.9	-65.82	-3,951.4	390.1	271.7	127.3	144.45	1.881		
10,700.0	6,803.9	10,635.3	6,692.5	79.6	79.7	-65.62	-4,051.4	390.1	272.2	124.4	147.75	1.842		
10,800.0	6,803.9	10,735.3	6,691.5	81.5	81.6	-65.41	-4,151.4	390.1	272.6	121.6	151.04	1.805		
10,900.0	6,803.9	10,835.3	6,690.4	83.3	83.5	-65.20	-4,251.4	390.1	273.1	118.8	154.33	1.769		
11,000.0	6,804.0	10,935.3	6,689.3	85.2	85.4	-65.00	-4,351.4	390.1	273.5	115.9	157.60	1.736		
11,100.0	6,804.0	11,035.3	6,688.3	87.1	87.3	-64.79	-4,451.3	390.1	274.0	113.1	160.87	1.703		
11,200.0	6,804.0	11,135.3	6,687.2	89.0	89.0	-64.59	-4,551.3	390.1	274.5	110.5	164.00	1.673		
11,220.2	6,804.0	11,155.5	6,687.0	89.4	89.4	-64.55	-4,571.5	390.1	274.6	110.0	164.59	1.668 SF		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-243 - Wellbore #1 - Plan #1 (7-01-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Warning						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	89.99	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	1.5	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	86.27	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	320.4	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	24.629		
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	24.470		
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	24.394		
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		

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-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-243 - Wellbore #1 - Plan #1 (7-01-14)													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 (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,800.0	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	137.0	688.0	556.1	533.3	22.82	24.366		
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	25.175		
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	25.421		
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		
5,928.4	5,918.4	5,984.9	5,919.4	13.5	19.3	90.04	161.5	802.7	660.5	633.3	27.27	24.218		
6,000.0	5,990.0	6,056.0	5,990.2	13.7	19.3	90.55	155.7	802.7	660.6	633.0	27.56	23.969		
6,100.0	6,090.0	6,152.6	6,085.0	13.9	19.4	-87.97	137.3	802.7	661.0	633.0	27.94	23.658		
6,200.0	6,189.0	6,246.8	6,174.4	14.0	19.5	-86.40	107.9	802.7	661.9	633.7	28.22	23.458		
6,300.0	6,285.5	6,339.0	6,257.9	14.1	19.5	-84.90	68.8	802.7	663.2	634.8	28.43	23.330		
6,400.0	6,377.8	6,429.6	6,334.7	14.2	19.6	-83.50	20.8	802.7	664.9	636.3	28.61	23.238		
6,500.0	6,464.3	6,518.7	6,404.1	14.3	19.7	-82.21	-34.9	802.7	666.8	638.0	28.83	23.126		
6,600.0	6,543.5	6,606.5	6,465.7	14.4	19.8	-81.04	-97.3	802.7	668.8	639.7	29.15	22.945		
6,700.0	6,614.1	6,693.1	6,519.2	14.6	20.0	-80.02	-165.5	802.7	670.8	641.1	29.65	22.624		
6,800.0	6,674.9	6,778.9	6,564.1	15.0	20.2	-79.15	-238.5	802.7	672.6	642.2	30.42	22.113		
6,900.0	6,724.8	6,863.9	6,600.3	15.6	20.6	-78.45	-315.4	802.7	674.3	642.8	31.51	21.401		
7,000.0	6,763.0	6,950.0	6,628.0	16.3	21.0	-77.91	-396.8	802.7	675.5	642.6	32.96	20.495		
7,100.0	6,788.8	7,032.5	6,645.9	17.3	21.6	-77.55	-477.3	802.7	676.4	641.7	34.75	19.463		
7,200.0	6,801.7	7,116.3	6,655.0	18.4	22.3	-77.37	-560.6	802.7	676.9	640.0	36.88	18.355		
7,300.0	6,803.3	7,207.2	6,655.7	19.6	23.2	-77.32	-651.5	802.7	677.0	637.8	39.24	17.255		
7,400.0	6,803.3	7,307.2	6,655.0	20.9	24.3	-77.26	-751.5	802.7	677.2	635.4	41.80	16.201		
7,500.0	6,803.4	7,407.2	6,654.3	22.3	25.5	-77.20	-851.5	802.7	677.4	632.8	44.53	15.211		
7,600.0	6,803.4	7,507.2	6,653.5	23.8	26.7	-77.14	-951.5	802.7	677.5	630.1	47.40	14.294		
7,700.0	6,803.4	7,607.2	6,652.8	25.3	28.1	-77.08	-1,051.5	802.7	677.7	627.3	50.39	13.450		
7,800.0	6,803.4	7,707.2	6,652.1	26.9	29.5	-77.01	-1,151.5	802.7	677.9	624.4	53.47	12.678		
7,900.0	6,803.4	7,807.2	6,651.3	28.5	31.0	-76.95	-1,251.5	802.7	678.0	621.4	56.63	11.974		
8,000.0	6,803.4	7,907.2	6,650.6	30.2	32.5	-76.89	-1,351.5	802.7	678.2	618.4	59.86	11.331		
8,100.0	6,803.5	8,007.2	6,649.9	31.9	34.1	-76.83	-1,451.5	802.7	678.4	615.2	63.14	10.744		
8,200.0	6,803.5	8,107.2	6,649.1	33.6	35.7	-76.77	-1,551.4	802.7	678.6	612.1	66.47	10.208		
8,300.0	6,803.5	8,207.2	6,648.4	35.3	37.4	-76.71	-1,651.4	802.7	678.7	608.9	69.84	9.718		
8,400.0	6,803.5	8,307.2	6,647.7	37.1	39.0	-76.64	-1,751.4	802.7	678.9	605.7	73.25	9.269		
8,500.0	6,803.5	8,407.2	6,646.9	38.9	40.7	-76.58	-1,851.4	802.7	679.1	602.4	76.68	8.856		
8,600.0	6,803.5	8,507.2	6,646.2	40.6	42.4	-76.52	-1,951.4	802.7	679.3	599.1	80.15	8.475		
8,700.0	6,803.6	8,607.2	6,645.5	42.4	44.1	-76.46	-2,051.4	802.7	679.4	595.8	83.63	8.124		
8,800.0	6,803.6	8,707.2	6,644.7	44.2	45.9	-76.40	-2,151.4	802.7	679.6	592.5	87.13	7.800		
8,900.0	6,803.6	8,807.2	6,644.0	46.1	47.6	-76.34	-2,251.4	802.7	679.8	589.1	90.65	7.499		
9,000.0	6,803.6	8,907.1	6,643.3	47.9	49.4	-76.27	-2,351.4	802.7	680.0	585.8	94.19	7.219		
9,100.0	6,803.6	9,007.1	6,642.5	49.7	51.2	-76.21	-2,451.4	802.7	680.1	582.4	97.74	6.959		
9,200.0	6,803.6	9,107.1	6,641.8	51.5	53.0	-76.15	-2,551.4	802.7	680.3	579.0	101.30	6.716		
9,300.0	6,803.7	9,207.1	6,641.1	53.4	54.8	-76.09	-2,651.4	802.7	680.5	575.6	104.87	6.489		
9,400.0	6,803.7	9,307.1	6,640.3	55.2	56.6	-76.03	-2,751.4	802.7	680.7	572.2	108.44	6.277		
9,500.0	6,803.7	9,407.1	6,639.6	57.1	58.4	-75.97	-2,851.4	802.7	680.9	568.8	112.03	6.078		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-243 - Wellbore #1 - Plan #1 (7-01-14)													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)	Semi Major Axis 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
9,600.0	6,803.7	9,507.1	6,638.9	58.9	60.2	-75.91	-2,951.4	802.7	681.1	565.4	115.62	5.890	
9,700.0	6,803.7	9,607.1	6,638.1	60.8	62.0	-75.85	-3,051.4	802.7	681.2	562.0	119.22	5.714	
9,800.0	6,803.8	9,707.1	6,637.4	62.7	63.8	-75.78	-3,151.4	802.7	681.4	558.6	122.83	5.548	
9,900.0	6,803.8	9,807.1	6,636.7	64.5	65.7	-75.72	-3,251.4	802.7	681.6	555.2	126.44	5.391	
10,000.0	6,803.8	9,907.1	6,635.9	66.4	67.5	-75.66	-3,351.3	802.7	681.8	551.7	130.05	5.243	
10,100.0	6,803.8	10,007.1	6,635.2	68.3	69.4	-75.60	-3,451.3	802.7	682.0	548.3	133.67	5.102	
10,200.0	6,803.8	10,107.1	6,634.5	70.2	71.2	-75.54	-3,551.3	802.7	682.2	544.9	137.29	4.969	
10,300.0	6,803.8	10,207.1	6,633.7	72.0	73.1	-75.48	-3,651.3	802.7	682.4	541.5	140.91	4.843	
10,400.0	6,803.9	10,307.1	6,633.0	73.9	74.9	-75.42	-3,751.3	802.7	682.6	538.0	144.54	4.722	
10,500.0	6,803.9	10,407.1	6,632.3	75.8	76.8	-75.36	-3,851.3	802.7	682.7	534.6	148.16	4.608	
10,600.0	6,803.9	10,507.1	6,631.6	77.7	78.6	-75.30	-3,951.3	802.7	682.9	531.1	151.79	4.499	
10,700.0	6,803.9	10,607.1	6,630.8	79.6	80.5	-75.24	-4,051.3	802.7	683.1	527.7	155.43	4.395	
10,800.0	6,803.9	10,707.1	6,630.1	81.5	82.4	-75.17	-4,151.3	802.7	683.3	524.3	159.06	4.296	
10,900.0	6,803.9	10,807.1	6,629.4	83.3	84.2	-75.11	-4,251.3	802.7	683.5	520.8	162.69	4.201	
11,000.0	6,804.0	10,907.1	6,628.6	85.2	86.1	-75.05	-4,351.3	802.7	683.7	517.4	166.33	4.111	
11,100.0	6,804.0	11,007.1	6,627.9	87.1	88.0	-74.99	-4,451.3	802.7	683.9	513.9	169.96	4.024	
11,200.0	6,804.0	11,107.1	6,627.2	89.0	89.9	-74.93	-4,551.3	802.7	684.1	510.5	173.60	3.941	
11,220.2	6,804.0	11,127.2	6,627.0	89.4	90.2	-74.92	-4,571.4	802.7	684.1	509.8	174.33	3.924 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-403 - Wellbore #1 - Plan #1 (7-01-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		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	2.0	2.0	0.0	0.0	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	0.0	89.2	89.2	88.9	0.23	388.973		
200.0	200.0	202.0	202.0	0.3	0.3	89.99	0.0	89.2	89.2	88.5	0.68	131.375		
300.0	300.0	302.0	302.0	0.6	0.6	89.99	0.0	89.2	89.2	88.0	1.13	79.034		
400.0	400.0	402.0	402.0	0.8	0.8	89.99	0.0	89.2	89.2	87.6	1.58	56.517		
466.0	466.0	468.0	468.0	0.9	0.9	89.99	0.0	89.2	89.2	87.3	1.87	47.574 CC		
500.0	500.0	501.9	501.9	1.0	1.0	89.99	0.0	89.2	89.2	87.2	2.03	43.993 ES		
600.0	600.0	600.0	600.0	1.2	1.2	89.82	0.3	90.9	90.9	88.5	2.46	36.923		
700.0	700.0	695.7	695.5	1.5	1.4	89.38	1.0	95.8	96.0	93.1	2.89	33.185		
800.0	800.0	792.0	791.5	1.7	1.7	88.73	2.3	103.9	104.4	101.1	3.34	31.300		
900.0	900.0	887.6	886.4	1.9	1.9	87.99	4.0	115.0	116.2	112.4	3.79	30.633		
1,000.0	1,000.0	982.4	980.1	2.1	2.2	87.24	6.2	129.2	131.2	126.9	4.26	30.772		
1,100.0	1,100.0	1,076.1	1,072.3	2.4	2.5	86.52	8.9	146.2	149.5	144.7	4.75	31.444		
1,200.0	1,200.0	1,171.4	1,165.3	2.6	2.9	85.88	12.0	166.2	170.6	165.3	5.27	32.366		
1,300.0	1,300.0	1,269.0	1,260.7	2.8	3.3	85.35	15.2	187.0	192.1	186.3	5.80	33.103		
1,400.0	1,400.0	1,366.6	1,356.0	3.0	3.7	84.93	18.5	207.8	213.6	207.3	6.35	33.661		
1,500.0	1,500.0	1,464.3	1,451.4	3.3	4.1	84.58	21.7	228.6	235.2	228.3	6.90	34.090		
1,600.0	1,600.0	1,561.9	1,546.7	3.5	4.6	84.29	24.9	249.4	256.7	249.2	7.46	34.425		
1,700.0	1,700.0	1,659.6	1,642.0	3.7	5.0	84.05	28.2	270.2	278.2	270.2	8.02	34.692		
1,800.0	1,800.0	1,757.2	1,737.4	3.9	5.4	83.84	31.4	291.1	299.8	291.2	8.59	34.908		
1,900.0	1,900.0	1,854.9	1,832.7	4.2	5.9	83.66	34.6	311.9	321.3	312.2	9.16	35.084		
2,000.0	2,000.0	1,952.5	1,928.1	4.4	6.3	83.51	37.9	332.7	342.9	333.2	9.73	35.231		
2,100.0	2,100.0	2,050.2	2,023.4	4.6	6.8	83.37	41.1	353.5	364.5	354.2	10.31	35.354		
2,200.0	2,200.0	2,147.8	2,118.8	4.8	7.2	83.25	44.3	374.3	386.0	375.1	10.89	35.458		
2,300.0	2,300.0	2,245.4	2,214.1	5.1	7.7	83.14	47.6	395.1	407.6	396.1	11.47	35.548		
2,400.0	2,400.0	2,343.1	2,309.5	5.3	8.1	83.04	50.8	416.0	429.2	417.1	12.05	35.625		
2,500.0	2,500.0	2,440.7	2,404.8	5.5	8.6	82.95	54.0	436.8	450.7	438.1	12.63	35.692		
2,600.0	2,600.0	2,538.7	2,500.4	5.7	9.0	41.46	57.3	457.7	471.0	459.3	11.75	40.093		
2,700.0	2,699.8	2,637.0	2,596.5	5.9	9.5	41.55	60.5	478.6	488.7	476.5	12.23	39.953		
2,800.0	2,799.5	2,735.7	2,692.8	6.2	10.0	41.96	63.8	499.7	504.0	491.3	12.71	39.637		
2,900.0	2,899.0	2,834.5	2,789.3	6.4	10.4	42.58	67.1	520.7	518.5	505.3	13.20	39.288		
3,000.0	2,998.5	2,933.3	2,885.8	6.6	10.9	43.16	70.4	541.8	533.1	519.4	13.69	38.955		
3,100.0	3,098.1	3,032.1	2,982.2	6.9	11.4	43.71	73.6	562.9	547.8	533.6	14.18	38.638		
3,200.0	3,197.6	3,130.9	3,078.7	7.1	11.8	44.23	76.9	583.9	562.5	547.8	14.67	38.335		
3,300.0	3,297.1	3,229.7	3,175.1	7.3	12.3	44.73	80.2	605.0	577.2	562.1	15.17	38.045		
3,400.0	3,396.7	3,328.4	3,271.6	7.6	12.8	45.20	83.4	626.0	592.0	576.3	15.68	37.768		
3,500.0	3,496.2	3,427.2	3,368.1	7.8	13.2	45.65	86.7	647.1	606.8	590.7	16.18	37.502		
3,600.0	3,595.7	3,526.0	3,464.5	8.1	13.7	46.07	90.0	668.2	621.7	605.0	16.69	37.248		
3,700.0	3,695.3	3,624.8	3,561.0	8.3	14.1	46.48	93.3	689.2	636.6	619.4	17.20	37.005		
3,800.0	3,794.8	3,723.6	3,657.4	8.6	14.6	46.87	96.5	710.3	651.5	633.8	17.72	36.771		
3,900.0	3,894.3	3,822.4	3,753.9	8.9	15.1	47.24	99.8	731.3	666.4	648.2	18.24	36.547		
4,000.0	3,993.9	3,921.2	3,850.4	9.1	15.5	47.59	103.1	752.4	681.4	662.7	18.76	36.332		
4,100.0	4,093.4	4,020.0	3,946.8	9.4	16.0	47.93	106.4	773.5	696.4	677.1	19.28	36.125		
4,200.0	4,192.9	4,118.7	4,043.3	9.6	16.5	48.26	109.6	794.5	711.4	691.6	19.80	35.926		
4,300.0	4,292.5	4,217.5	4,139.7	9.9	16.9	48.57	112.9	815.6	726.5	706.1	20.33	35.735		
4,400.0	4,392.0	4,316.3	4,236.2	10.2	17.4	48.87	116.2	836.6	741.5	720.7	20.86	35.551		
4,500.0	4,491.5	4,415.1	4,332.7	10.4	17.9	49.15	119.4	857.7	756.6	735.2	21.39	35.375		
4,600.0	4,591.1	4,513.9	4,429.1	10.7	18.3	49.43	122.7	878.8	771.7	749.8	21.92	35.204		
4,700.0	4,690.6	4,612.7	4,525.6	11.0	18.8	49.69	126.0	899.8	786.8	764.4	22.46	35.040		

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-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34U-403 - Wellbore #1 - Plan #1 (7-01-14)													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 (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,800.0	4,790.2	4,711.4	4,622.0	11.2	19.3	50.07	129.3	920.9	802.5	779.5	22.96	34.948		
4,900.0	4,890.0	4,809.8	4,718.1	11.4	19.7	50.37	132.5	941.8	820.2	796.8	23.41	35.043		
5,000.0	4,990.0	4,907.8	4,813.7	11.6	20.2	50.52	135.8	962.7	840.1	816.3	23.82	35.272		
5,100.0	5,090.0	5,005.4	4,909.1	11.8	20.7	91.57	139.0	983.5	861.3	837.1	24.25	35.512		
5,200.0	5,190.0	5,103.1	5,004.4	12.0	21.1	91.31	142.2	1,004.4	882.6	857.8	24.72	35.706		
5,300.0	5,290.0	5,200.7	5,099.8	12.2	21.6	91.07	145.5	1,025.2	903.8	878.6	25.18	35.892		
5,400.0	5,390.0	5,298.4	5,195.1	12.4	22.0	90.84	148.7	1,046.0	925.1	899.4	25.65	36.070		
5,500.0	5,490.0	5,400.2	5,294.6	12.6	22.5	90.61	152.1	1,067.7	946.4	920.2	26.12	36.230		
5,600.0	5,590.0	5,546.7	5,438.5	12.8	23.0	90.34	156.3	1,094.7	964.8	938.1	26.64	36.215		
5,700.0	5,690.0	5,695.7	5,586.1	13.0	23.4	90.16	159.4	1,114.6	978.1	951.0	27.14	36.034		
5,800.0	5,790.0	5,846.5	5,736.3	13.2	23.7	90.04	161.3	1,127.0	986.4	958.7	27.63	35.702		
5,900.0	5,890.0	5,998.1	5,887.9	13.5	23.9	90.00	162.0	1,131.6	989.4	961.3	28.09	35.221		
6,000.0	5,990.0	6,102.2	5,992.0	13.7	24.0	90.00	162.0	1,131.6	989.4	960.9	28.48	34.737		
6,034.4	6,024.4	6,136.6	6,026.4	13.7	24.0	-90.02	162.0	1,131.6	989.4	960.8	28.61	34.583		
6,100.0	6,090.0	6,202.2	6,092.0	13.9	24.1	-90.00	160.3	1,131.6	989.4	960.6	28.85	34.297		
6,200.0	6,189.0	6,302.2	6,191.0	14.0	24.2	-89.99	147.0	1,131.6	989.4	960.3	29.10	34.002		
6,300.0	6,285.5	6,402.2	6,287.4	14.1	24.2	-89.98	121.0	1,131.6	989.4	960.1	29.29	33.785		
6,400.0	6,377.8	6,502.1	6,379.6	14.2	24.3	-89.98	82.5	1,131.6	989.4	960.0	29.46	33.591		
6,500.0	6,464.3	6,602.1	6,466.0	14.3	24.3	-89.97	32.4	1,131.6	989.4	959.7	29.67	33.345		
6,600.0	6,543.5	6,702.0	6,545.1	14.4	24.4	-89.96	-28.5	1,131.6	989.4	959.4	30.01	32.966		
6,700.0	6,614.1	6,801.9	6,615.6	14.6	24.5	-89.96	-99.2	1,131.6	989.4	958.9	30.56	32.379		
6,800.0	6,674.9	6,901.8	6,676.2	15.0	24.7	-89.95	-178.5	1,131.6	989.4	958.0	31.37	31.535		
6,900.0	6,724.8	7,001.7	6,726.0	15.6	24.9	-89.95	-265.0	1,131.6	989.4	956.9	32.52	30.428		
7,000.0	6,763.0	7,101.6	6,764.1	16.3	25.3	-89.95	-357.3	1,131.6	989.4	955.4	34.00	29.099		
7,100.0	6,788.8	7,201.4	6,789.8	17.3	25.8	-89.94	-453.7	1,131.6	989.4	953.6	35.82	27.621		
7,200.0	6,801.7	7,301.3	6,802.7	18.4	26.4	-89.94	-552.7	1,131.6	989.4	951.5	37.93	26.082		
7,300.0	6,803.3	7,401.2	6,804.3	19.6	27.2	-89.94	-652.6	1,131.6	989.4	949.1	40.29	24.560		
7,400.0	6,803.3	7,501.2	6,804.3	20.9	28.1	-89.94	-752.6	1,131.6	989.4	946.6	42.85	23.091		
7,500.0	6,803.4	7,601.2	6,804.4	22.3	29.1	-89.94	-852.6	1,131.6	989.4	943.8	45.59	21.702		
7,600.0	6,803.4	7,701.2	6,804.4	23.8	30.2	-89.94	-952.6	1,131.6	989.4	940.9	48.48	20.408		
7,700.0	6,803.4	7,801.2	6,804.4	25.3	31.4	-89.94	-1,052.6	1,131.6	989.4	937.9	51.50	19.213		
7,800.0	6,803.4	7,901.2	6,804.4	26.9	32.6	-89.94	-1,152.6	1,131.6	989.4	934.8	54.62	18.116		
7,900.0	6,803.4	8,001.2	6,804.4	28.5	33.9	-89.94	-1,252.6	1,131.6	989.4	931.6	57.82	17.111		
8,000.0	6,803.4	8,101.2	6,804.4	30.2	35.3	-89.94	-1,352.6	1,131.6	989.4	928.3	61.10	16.193		
8,100.0	6,803.5	8,201.2	6,804.5	31.9	36.8	-89.94	-1,452.6	1,131.6	989.4	925.0	64.44	15.353		
8,200.0	6,803.5	8,301.2	6,804.5	33.6	38.3	-89.94	-1,552.6	1,131.6	989.4	921.6	67.84	14.585		
8,300.0	6,803.5	8,401.2	6,804.5	35.3	39.8	-89.94	-1,652.6	1,131.6	989.4	918.2	71.28	13.881		
8,400.0	6,803.5	8,501.2	6,804.5	37.1	41.4	-89.94	-1,752.6	1,131.6	989.4	914.7	74.76	13.236		
8,500.0	6,803.5	8,601.2	6,804.5	38.9	42.9	-89.94	-1,852.6	1,131.6	989.4	911.2	78.27	12.642		
8,600.0	6,803.5	8,701.2	6,804.5	40.6	44.6	-89.94	-1,952.6	1,131.6	989.4	907.6	81.81	12.094		
8,700.0	6,803.6	8,801.2	6,804.6	42.4	46.2	-89.94	-2,052.6	1,131.6	989.4	904.1	85.38	11.589		
8,800.0	6,803.6	8,901.2	6,804.6	44.2	47.9	-89.94	-2,152.6	1,131.6	989.4	900.5	88.97	11.121		
8,900.0	6,803.6	9,001.2	6,804.6	46.1	49.5	-89.94	-2,252.6	1,131.6	989.4	896.9	92.58	10.688		
9,000.0	6,803.6	9,101.2	6,804.6	47.9	51.2	-89.94	-2,352.6	1,131.6	989.4	893.2	96.21	10.284		
9,100.0	6,803.6	9,201.2	6,804.6	49.7	53.0	-89.94	-2,452.6	1,131.6	989.4	889.6	99.85	9.909		
9,200.0	6,803.6	9,301.2	6,804.6	51.5	54.7	-89.94	-2,552.6	1,131.6	989.4	885.9	103.51	9.559		
9,300.0	6,803.7	9,401.2	6,804.7	53.4	56.4	-89.94	-2,652.6	1,131.6	989.4	882.3	107.18	9.231		
9,400.0	6,803.7	9,501.2	6,804.7	55.2	58.2	-89.94	-2,752.6	1,131.6	989.4	878.6	110.86	8.925		
9,500.0	6,803.7	9,601.2	6,804.7	57.1	59.9	-89.94	-2,852.6	1,131.6	989.5	874.9	114.56	8.637		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<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 (7-01-14)													<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)	Semi Major Axis Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,600.0	6,803.7	9,701.2	6,804.7	58.9	61.7	-89.94	-2,952.6	1,131.6	989.5	871.2	118.26	8.367		
9,700.0	6,803.7	9,801.2	6,804.7	60.8	63.5	-89.94	-3,052.6	1,131.6	989.5	867.5	121.97	8.112		
9,800.0	6,803.8	9,901.2	6,804.8	62.7	65.3	-89.94	-3,152.6	1,131.6	989.5	863.8	125.69	7.872		
9,900.0	6,803.8	10,001.2	6,804.8	64.5	67.1	-89.94	-3,252.6	1,131.6	989.5	860.0	129.42	7.646		
10,000.0	6,803.8	10,101.2	6,804.8	66.4	68.9	-89.94	-3,352.6	1,131.6	989.5	856.3	133.15	7.431		
10,100.0	6,803.8	10,201.2	6,804.8	68.3	70.7	-89.94	-3,452.6	1,131.6	989.5	852.6	136.89	7.228		
10,200.0	6,803.8	10,301.2	6,804.8	70.2	72.5	-89.94	-3,552.6	1,131.6	989.5	848.8	140.63	7.036		
10,300.0	6,803.8	10,401.2	6,804.8	72.0	74.3	-89.94	-3,652.6	1,131.6	989.5	845.1	144.38	6.853		
10,400.0	6,803.9	10,501.2	6,804.9	73.9	76.2	-89.94	-3,752.6	1,131.6	989.5	841.3	148.13	6.679		
10,500.0	6,803.9	10,601.2	6,804.9	75.8	78.0	-89.94	-3,852.6	1,131.6	989.5	837.6	151.89	6.514		
10,600.0	6,803.9	10,701.2	6,804.9	77.7	79.8	-89.94	-3,952.6	1,131.6	989.5	833.8	155.66	6.357		
10,700.0	6,803.9	10,801.2	6,804.9	79.6	81.7	-89.94	-4,052.6	1,131.6	989.5	830.0	159.42	6.207		
10,800.0	6,803.9	10,901.2	6,804.9	81.5	83.5	-89.94	-4,152.6	1,131.6	989.5	826.3	163.19	6.063		
10,900.0	6,803.9	11,001.2	6,804.9	83.3	85.3	-89.94	-4,252.6	1,131.6	989.5	822.5	166.96	5.926		
11,000.0	6,804.0	11,101.2	6,805.0	85.2	87.2	-89.94	-4,352.6	1,131.6	989.5	818.7	170.74	5.795		
11,100.0	6,804.0	11,201.2	6,805.0	87.1	89.0	-89.94	-4,452.6	1,131.6	989.5	814.9	174.52	5.670		
11,200.0	6,804.0	11,301.2	6,805.0	89.0	90.9	-89.94	-4,552.6	1,131.6	989.5	811.2	178.30	5.549		
11,220.2	6,804.0	11,321.4	6,805.0	89.4	91.3	-89.94	-4,572.7	1,131.6	989.5	810.4	179.06	5.526 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Suden 34R-423
<b>Project:</b>	SEC.34-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Reference Site:</b>	Suden 34U-HZ Pad Sec.34-T5N-R64W	<b>MD Reference:</b>	WELL @ 4679.5ft (Ensign Rig #136 - RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Suden 34R-423	<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 #2 (8-01-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4679.5ft (Ensign Rig #136 - Coordinates are relative to: Suden 34R-423

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.63°



Reference Depths are relative to WELL @ 4679.5ft (Ensign Rig #136 - Coordinates are relative to: Sudan 34R-423  
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone  
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.63°

