

PETROLEUM DEVELOPMENT CORP Weld County CO

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

Surface Location: Suden 34U-HZ Pad Sec.34-T5N-R64W

North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

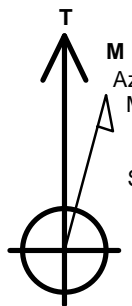
Ground Elevation: 4668.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1376383.63	3270176.41	40.362520	-104.530440	

Ensign Rig #136 - RKB - 12.5 WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 212'FNL & 1142'FEL	1.0	0.0	0.0	Point
BHL 500'FSL & 816'FEL	6687.0	-4572.1	359.4	Point



Azimuths to True North
Magnetic North: 8.31°

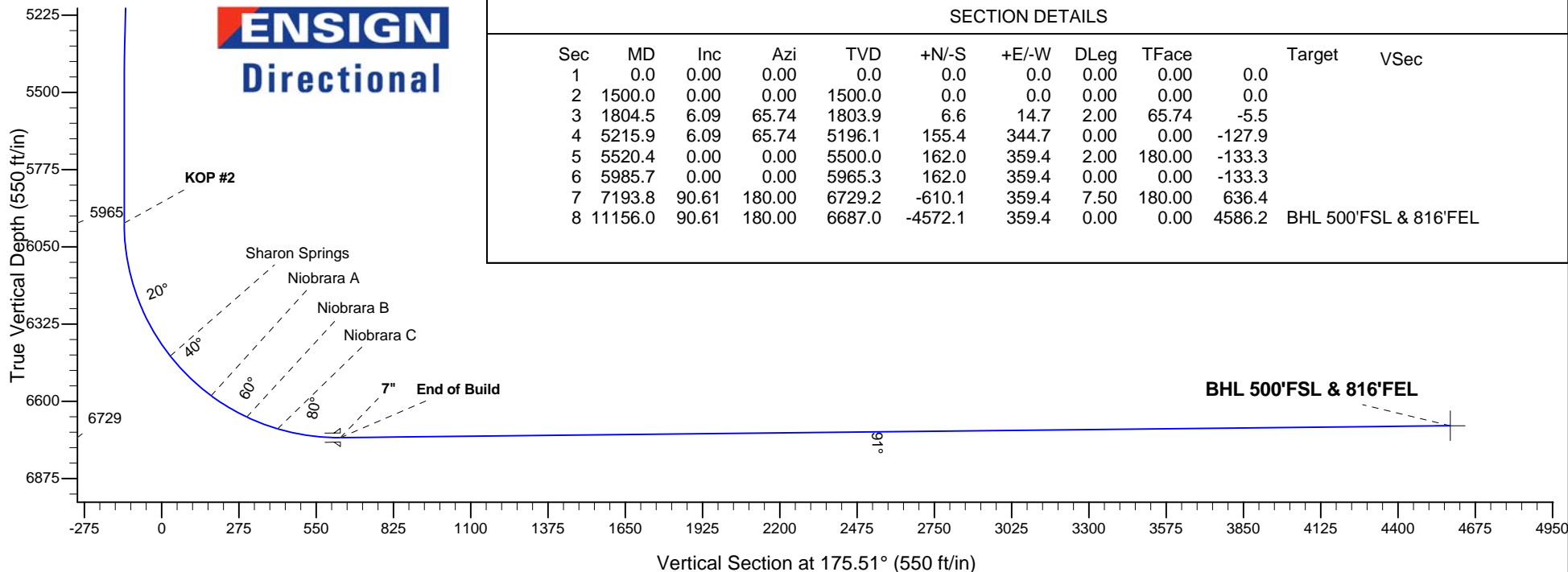
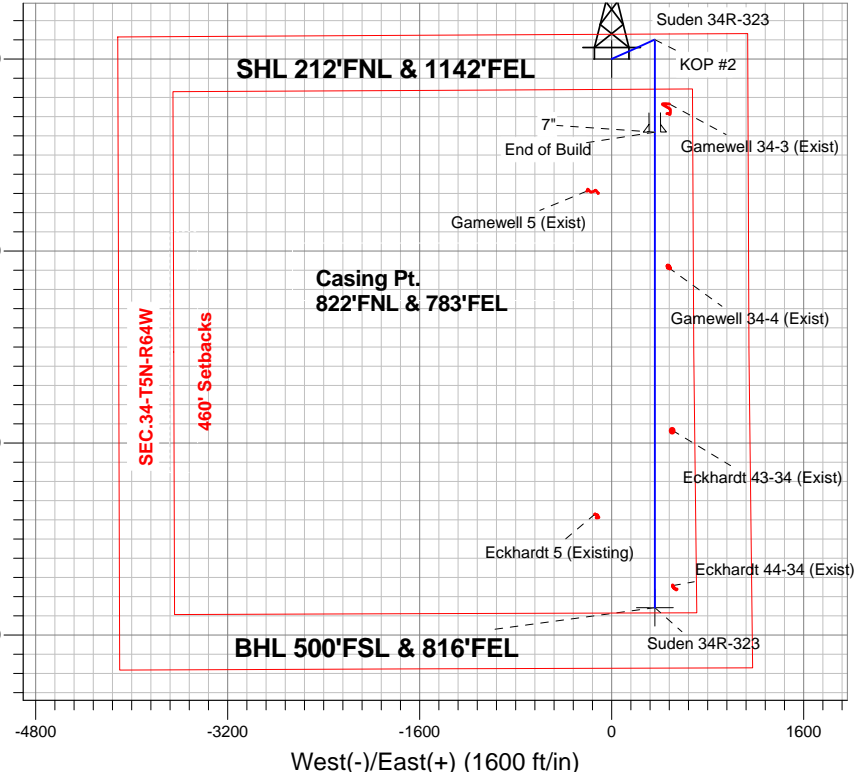
Magnetic Field
Strength: 52808.0snT
Dip Angle: 66.95°
Date: 7/31/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP #1
5965.3	5985.7	KOP #2
6729.2	7193.8	End of Build

Suden 34U-HZ Pad Sec.34-T5N-R64W
Suden 34R-323
Plan #2 (8-01-14)
7:49, 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	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	1804.5	6.09	65.74	1803.9	6.6	14.7	2.00	65.74	-5.5	
4	5215.9	6.09	65.74	5196.1	155.4	344.7	0.00	0.00	-127.9	
5	5520.4	0.00	0.00	5500.0	162.0	359.4	2.00	180.00	-133.3	
6	5985.7	0.00	0.00	5965.3	162.0	359.4	0.00	0.00	-133.3	
7	7193.8	90.61	180.00	6729.2	-610.1	359.4	7.50	180.00	636.4	
8	11156.0	90.61	180.00	6687.0	-4572.1	359.4	0.00	0.00	4586.2	BHL 500'FSL & 816'FEL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.34-T5N-R64W

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

Suden 34R-323

Wellbore #1

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

Standard Planning Report

01 August, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Suden 34R-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Project:	SEC.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	North Reference:	True
Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (8-01-14)		

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

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

Well	Suden 34R-323					
Well Position	+N/-S	0.0 ft	Northing:	1,376,383.63 ft	Latitude:	40.362520
	+E/-W	30.7 ft	Easting:	3,270,176.41 ft	Longitude:	-104.530440
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,668.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/31/2014	8.31	66.95	52,808

Design	Plan #2 (8-01-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	175.51

Plan Sections										
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	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,804.5	6.09	65.74	1,803.9	6.6	14.7	2.00	2.00	0.00	65.74	
5,215.9	6.09	65.74	5,196.1	155.4	344.7	0.00	0.00	0.00	0.00	
5,520.4	0.00	0.00	5,500.0	162.0	359.4	2.00	-2.00	0.00	180.00	
5,985.7	0.00	0.00	5,965.3	162.0	359.4	0.00	0.00	0.00	0.00	
7,193.8	90.61	180.00	6,729.2	-610.1	359.4	7.50	7.50	0.00	180.00	
11,156.0	90.61	180.00	6,687.0	-4,572.1	359.4	0.00	0.00	0.00	0.00	BHL 500'FSL & 816

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Project:	SEC.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	North Reference:	True
Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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 & 1142'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
KOP #1									
1,600.0	2.00	65.74	1,600.0	0.7	1.6	-0.6	2.00	2.00	0.00
1,700.0	4.00	65.74	1,699.8	2.9	6.4	-2.4	2.00	2.00	0.00
1,800.0	6.00	65.74	1,799.5	6.4	14.3	-5.3	2.00	2.00	0.00
1,804.5	6.09	65.74	1,803.9	6.6	14.7	-5.5	2.00	2.00	0.00
1,900.0	6.09	65.74	1,898.9	10.8	24.0	-8.9	0.00	0.00	0.00
2,000.0	6.09	65.74	1,998.3	15.2	33.6	-12.5	0.00	0.00	0.00
2,100.0	6.09	65.74	2,097.8	19.5	43.3	-16.1	0.00	0.00	0.00
2,200.0	6.09	65.74	2,197.2	23.9	53.0	-19.7	0.00	0.00	0.00
2,300.0	6.09	65.74	2,296.6	28.2	62.7	-23.2	0.00	0.00	0.00
2,400.0	6.09	65.74	2,396.1	32.6	72.3	-26.8	0.00	0.00	0.00
2,500.0	6.09	65.74	2,495.5	37.0	82.0	-30.4	0.00	0.00	0.00
2,600.0	6.09	65.74	2,594.9	41.3	91.7	-34.0	0.00	0.00	0.00
2,700.0	6.09	65.74	2,694.4	45.7	101.3	-37.6	0.00	0.00	0.00
2,800.0	6.09	65.74	2,793.8	50.0	111.0	-41.2	0.00	0.00	0.00
2,900.0	6.09	65.74	2,893.2	54.4	120.7	-44.8	0.00	0.00	0.00
3,000.0	6.09	65.74	2,992.7	58.8	130.4	-48.4	0.00	0.00	0.00
3,100.0	6.09	65.74	3,092.1	63.1	140.0	-52.0	0.00	0.00	0.00
3,200.0	6.09	65.74	3,191.6	67.5	149.7	-55.5	0.00	0.00	0.00
3,300.0	6.09	65.74	3,291.0	71.8	159.4	-59.1	0.00	0.00	0.00
3,400.0	6.09	65.74	3,390.4	76.2	169.0	-62.7	0.00	0.00	0.00
3,500.0	6.09	65.74	3,489.9	80.6	178.7	-66.3	0.00	0.00	0.00
3,510.2	6.09	65.74	3,500.0	81.0	179.7	-66.7	0.00	0.00	0.00
Parkman									
3,600.0	6.09	65.74	3,589.3	84.9	188.4	-69.9	0.00	0.00	0.00
3,700.0	6.09	65.74	3,688.7	89.3	198.1	-73.5	0.00	0.00	0.00
3,800.0	6.09	65.74	3,788.2	93.6	207.7	-77.1	0.00	0.00	0.00
3,900.0	6.09	65.74	3,887.6	98.0	217.4	-80.7	0.00	0.00	0.00
4,000.0	6.09	65.74	3,987.0	102.4	227.1	-84.2	0.00	0.00	0.00
4,100.0	6.09	65.74	4,086.5	106.7	236.7	-87.8	0.00	0.00	0.00
4,200.0	6.09	65.74	4,185.9	111.1	246.4	-91.4	0.00	0.00	0.00
4,264.5	6.09	65.74	4,250.0	113.9	252.6	-93.7	0.00	0.00	0.00
Sussex									
4,300.0	6.09	65.74	4,285.3	115.4	256.1	-95.0	0.00	0.00	0.00

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Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	North Reference:	True
Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	6.09	65.74	4,384.8	119.8	265.8	-98.6	0.00	0.00	0.00
4,500.0	6.09	65.74	4,484.2	124.1	275.4	-102.2	0.00	0.00	0.00
4,600.0	6.09	65.74	4,583.7	128.5	285.1	-105.8	0.00	0.00	0.00
4,700.0	6.09	65.74	4,683.1	132.9	294.8	-109.4	0.00	0.00	0.00
4,800.0	6.09	65.74	4,782.5	137.2	304.4	-112.9	0.00	0.00	0.00
4,900.0	6.09	65.74	4,882.0	141.6	314.1	-116.5	0.00	0.00	0.00
5,000.0	6.09	65.74	4,981.4	145.9	323.8	-120.1	0.00	0.00	0.00
5,100.0	6.09	65.74	5,080.8	150.3	333.5	-123.7	0.00	0.00	0.00
5,189.7	6.09	65.74	5,170.0	154.2	342.1	-126.9	0.00	0.00	0.00
Shannon									
5,200.0	6.09	65.74	5,180.3	154.7	343.1	-127.3	0.00	0.00	0.00
5,215.9	6.09	65.74	5,196.1	155.4	344.7	-127.9	0.00	0.00	0.00
5,300.0	4.41	65.74	5,279.8	158.5	351.7	-130.5	2.00	-2.00	0.00
5,400.0	2.41	65.74	5,379.6	161.0	357.1	-132.5	2.00	-2.00	0.00
5,500.0	0.41	65.74	5,479.6	162.0	359.3	-133.3	2.00	-2.00	0.00
5,520.4	0.00	0.00	5,500.0	162.0	359.4	-133.3	2.00	-2.00	0.00
5,600.0	0.00	0.00	5,579.6	162.0	359.4	-133.3	0.00	0.00	0.00
5,700.0	0.00	0.00	5,679.6	162.0	359.4	-133.3	0.00	0.00	0.00
5,800.0	0.00	0.00	5,779.6	162.0	359.4	-133.3	0.00	0.00	0.00
5,900.0	0.00	0.00	5,879.6	162.0	359.4	-133.3	0.00	0.00	0.00
5,985.7	0.00	0.00	5,965.3	162.0	359.4	-133.3	0.00	0.00	0.00
KOP #2									
6,000.0	1.07	180.00	5,979.6	161.9	359.4	-133.2	7.51	7.51	0.00
6,100.0	8.57	180.00	6,079.2	153.5	359.4	-124.8	7.50	7.50	0.00
6,200.0	16.07	180.00	6,176.8	132.1	359.4	-103.6	7.50	7.50	0.00
6,300.0	23.57	180.00	6,270.8	98.2	359.4	-69.8	7.50	7.50	0.00
6,400.0	31.07	180.00	6,359.6	52.4	359.4	-24.0	7.50	7.50	0.00
6,496.7	38.32	180.00	6,439.0	-2.6	359.4	30.8	7.50	7.50	0.00
Sharon Springs									
6,500.0	38.57	180.00	6,441.6	-4.7	359.4	32.8	7.50	7.50	0.00
6,600.0	46.07	180.00	6,515.5	-72.0	359.4	99.9	7.50	7.50	0.00
6,700.0	53.57	180.00	6,580.0	-148.4	359.4	176.1	7.50	7.50	0.00
Niobrara A									
6,800.0	61.07	180.00	6,633.9	-232.4	359.4	259.9	7.50	7.50	0.00
6,848.5	64.71	180.00	6,656.0	-275.6	359.4	302.9	7.50	7.50	0.00
Niobrara B									
6,900.0	68.57	180.00	6,676.4	-322.9	359.4	350.1	7.50	7.50	0.00
6,966.5	73.56	180.00	6,698.0	-385.8	359.4	412.7	7.50	7.50	0.00
Niobrara C									
7,000.0	76.07	180.00	6,706.8	-418.1	359.4	445.0	7.50	7.50	0.00
7,100.0	83.57	180.00	6,724.4	-516.4	359.4	543.0	7.50	7.50	0.00
7,193.8	90.61	180.00	6,729.2	-610.1	359.4	636.4	7.50	7.50	0.00
End of Build - 7"									
7,200.0	90.61	180.00	6,729.1	-616.3	359.4	642.5	0.01	0.01	0.00
7,300.0	90.61	180.00	6,728.1	-716.3	359.4	742.2	0.00	0.00	0.00
7,400.0	90.61	180.00	6,727.0	-816.3	359.4	841.9	0.00	0.00	0.00
7,500.0	90.61	180.00	6,725.9	-916.2	359.4	941.6	0.00	0.00	0.00
7,600.0	90.61	180.00	6,724.9	-1,016.2	359.4	1,041.3	0.00	0.00	0.00
7,700.0	90.61	180.00	6,723.8	-1,116.2	359.4	1,141.0	0.00	0.00	0.00
7,800.0	90.61	180.00	6,722.7	-1,216.2	359.4	1,240.7	0.00	0.00	0.00
7,900.0	90.61	180.00	6,721.7	-1,316.2	359.4	1,340.3	0.00	0.00	0.00

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Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	North Reference:	True
Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
8,000.0	90.61	180.00	6,720.6	-1,416.2	359.4	1,440.0	0.00	0.00	0.00
8,100.0	90.61	180.00	6,719.5	-1,516.2	359.4	1,539.7	0.00	0.00	0.00
8,200.0	90.61	180.00	6,718.5	-1,616.2	359.4	1,639.4	0.00	0.00	0.00
8,300.0	90.61	180.00	6,717.4	-1,716.2	359.4	1,739.1	0.00	0.00	0.00
8,400.0	90.61	180.00	6,716.3	-1,816.2	359.4	1,838.8	0.00	0.00	0.00
8,500.0	90.61	180.00	6,715.3	-1,916.2	359.4	1,938.5	0.00	0.00	0.00
8,600.0	90.61	180.00	6,714.2	-2,016.2	359.4	2,038.2	0.00	0.00	0.00
8,700.0	90.61	180.00	6,713.1	-2,116.2	359.4	2,137.8	0.00	0.00	0.00
8,800.0	90.61	180.00	6,712.1	-2,216.2	359.4	2,237.5	0.00	0.00	0.00
8,900.0	90.61	180.00	6,711.0	-2,316.2	359.4	2,337.2	0.00	0.00	0.00
9,000.0	90.61	180.00	6,710.0	-2,416.2	359.4	2,436.9	0.00	0.00	0.00
9,100.0	90.61	180.00	6,708.9	-2,516.2	359.4	2,536.6	0.00	0.00	0.00
9,200.0	90.61	180.00	6,707.8	-2,616.2	359.4	2,636.3	0.00	0.00	0.00
9,300.0	90.61	180.00	6,706.8	-2,716.1	359.4	2,736.0	0.00	0.00	0.00
9,400.0	90.61	180.00	6,705.7	-2,816.1	359.4	2,835.6	0.00	0.00	0.00
9,500.0	90.61	180.00	6,704.6	-2,916.1	359.4	2,935.3	0.00	0.00	0.00
9,600.0	90.61	180.00	6,703.6	-3,016.1	359.4	3,035.0	0.00	0.00	0.00
9,700.0	90.61	180.00	6,702.5	-3,116.1	359.4	3,134.7	0.00	0.00	0.00
9,800.0	90.61	180.00	6,701.4	-3,216.1	359.4	3,234.4	0.00	0.00	0.00
9,900.0	90.61	180.00	6,700.4	-3,316.1	359.4	3,334.1	0.00	0.00	0.00
10,000.0	90.61	180.00	6,699.3	-3,416.1	359.4	3,433.8	0.00	0.00	0.00
10,100.0	90.61	180.00	6,698.2	-3,516.1	359.4	3,533.5	0.00	0.00	0.00
10,200.0	90.61	180.00	6,697.2	-3,616.1	359.4	3,633.1	0.00	0.00	0.00
10,300.0	90.61	180.00	6,696.1	-3,716.1	359.4	3,732.8	0.00	0.00	0.00
10,400.0	90.61	180.00	6,695.0	-3,816.1	359.4	3,832.5	0.00	0.00	0.00
10,500.0	90.61	180.00	6,694.0	-3,916.1	359.4	3,932.2	0.00	0.00	0.00
10,600.0	90.61	180.00	6,692.9	-4,016.1	359.4	4,031.9	0.00	0.00	0.00
10,700.0	90.61	180.00	6,691.9	-4,116.1	359.4	4,131.6	0.00	0.00	0.00
10,800.0	90.61	180.00	6,690.8	-4,216.1	359.4	4,231.3	0.00	0.00	0.00
10,900.0	90.61	180.00	6,689.7	-4,316.1	359.4	4,330.9	0.00	0.00	0.00
11,000.0	90.61	180.00	6,688.7	-4,416.1	359.4	4,430.6	0.00	0.00	0.00
11,100.0	90.61	180.00	6,687.6	-4,516.0	359.4	4,530.3	0.00	0.00	0.00
11,156.0	90.61	180.00	6,687.0	-4,572.1	359.4	4,586.2	0.00	0.00	0.00

BHL 500'FSL & 816'FEL

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,193.8	6,729.2	7"	7	7-1/2

Database:	Landmark	Local Co-ordinate Reference:	Well Suden 34R-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Project:	SEC.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	North Reference:	True
Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (8-01-14)		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,510.2	3,500.0	Parkman		0.00	
4,264.5	4,250.0	Sussex		0.00	
5,189.7	5,170.0	Shannon		0.00	
6,496.7	6,439.0	Sharon Springs		0.00	
6,700.0	6,580.0	Niobrara A		0.00	
6,848.5	6,656.0	Niobrara B		0.00	
6,966.5	6,698.0	Niobrara C		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,500.0	1,500.0	0.0	0.0	KOP #1
5,985.7	5,965.3	162.0	359.4	KOP #2
7,193.8	6,729.2	-610.1	359.4	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.34-T5N-R64W

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

Suden 34R-323

Wellbore #1

Plan #2 (8-01-14)

Anticollision Report

01 August, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date 8/1/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,155.3	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	9,677.1	6,625.0	146.8	-45.3	0.764	Level 1, CC, ES, SF
Eckhardt 44-34 (Exist) - Wellbore #1 - Wellbore #1	10,969.1	6,639.2	147.2	48.9	1.498	Level 3, CC, ES, SF
Eckhardt 5 (Existing) - Wellbore #1 - Wellbore #1	10,376.2	6,642.0	499.3	413.1	5.794	CC, ES
Eckhardt 5 (Existing) - Wellbore #1 - Wellbore #1	10,400.0	6,641.7	499.9	413.3	5.771	SF
Gamewell 34-3 (Exist) - Wellbore #1 - Wellbore #1	6,951.2	6,688.6	105.4	76.1	3.604	CC, ES, SF
Gamewell 34-4 (Exist) - Wellbore #1 - Wellbore #1	8,315.7	6,714.0	107.1	58.2	2.191	CC, ES, SF
Gamewell 5 (Exist) - Wellbore #1 - Wellbore #1	7,683.7	6,695.6	564.6	525.5	14.447	CC
Gamewell 5 (Exist) - Wellbore #1 - Wellbore #1	7,700.0	6,695.5	564.8	525.5	14.359	ES
Gamewell 5 (Exist) - Wellbore #1 - Wellbore #1	7,800.0	6,695.0	576.4	535.5	14.077	SF
Suden 34U-HZ Pad Sec.34-T5N-R64W						
Suden 34R-423 - Wellbore #1 - Plan #2 (8-01-14)	1,500.0	1,499.0	30.7	24.1	4.705	CC, ES
Suden 34R-423 - Wellbore #1 - Plan #2 (8-01-14)	11,156.0	11,219.4	274.6	109.9	1.668	SF
Suden 34U-243 - Wellbore #1 - Plan #1 (7-01-14)	1,000.0	1,000.0	30.7	26.4	7.178	CC, ES
Suden 34U-243 - Wellbore #1 - Plan #1 (7-01-14)	11,156.0	11,127.4	417.0	239.4	2.348	SF
Suden 34U-403 - Wellbore #1 - Plan #1 (7-01-14)	466.3	467.3	58.5	56.6	31.232	CC
Suden 34U-403 - Wellbore #1 - Plan #1 (7-01-14)	500.0	500.0	58.5	56.5	28.934	ES
Suden 34U-403 - Wellbore #1 - Plan #1 (7-01-14)	11,156.0	11,320.7	750.7	574.5	4.259	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		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
8,700.0	6,713.1	6,625.0	6,625.0	43.9	132.5	-81.28	-3,093.0	504.5	988.0	813.8	174.27	5.669					
8,800.0	6,712.1	6,625.0	6,625.0	45.7	132.5	-81.28	-3,093.0	504.5	889.3	713.2	176.07	5.051					
8,900.0	6,711.0	6,625.0	6,625.0	47.5	132.5	-81.28	-3,093.0	504.5	790.8	612.9	177.87	4.446					
9,000.0	6,710.0	6,625.0	6,625.0	49.3	132.5	-81.28	-3,093.0	504.5	692.8	513.1	179.68	3.856					
9,100.0	6,708.9	6,625.0	6,625.0	51.1	132.5	-81.28	-3,093.0	504.5	595.5	414.0	181.50	3.281					
9,200.0	6,707.8	6,625.0	6,625.0	53.0	132.5	-81.28	-3,093.0	504.5	499.1	315.8	183.33	2.723					
9,300.0	6,706.8	6,625.0	6,625.0	54.8	132.5	-81.28	-3,093.0	504.5	404.6	219.5	185.15	2.185					

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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)	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	
9,400.0	6,705.7	6,625.0	6,625.0	56.7	132.5	-81.28	-3,093.0	504.5	313.6	126.6	186.99	1.677		
9,500.0	6,704.6	6,625.0	6,625.0	58.5	132.5	-81.28	-3,093.0	504.5	230.0	41.2	188.83	1.218	Level 2	
9,600.0	6,703.6	6,625.0	6,625.0	60.4	132.5	-81.28	-3,093.0	504.5	165.8	-24.9	190.67	0.869	Level 1	
9,677.1	6,702.7	6,625.0	6,625.0	61.8	132.5	-81.28	-3,093.0	504.5	146.8	-45.3	192.09	0.764	Level 1, CC, ES, SF	
9,700.0	6,702.5	6,625.0	6,625.0	62.2	132.5	-81.28	-3,093.0	504.5	148.5	-44.0	192.51	0.772	Level 1	
9,800.0	6,701.4	6,625.0	6,625.0	64.1	132.5	-81.28	-3,093.0	504.5	191.4	-2.9	194.36	0.985	Level 1	
9,900.0	6,700.4	6,625.0	6,625.0	65.9	132.5	-81.28	-3,093.0	504.5	266.9	70.7	196.22	1.360	Level 3	
10,000.0	6,699.3	6,625.0	6,625.0	67.8	132.5	-81.28	-3,093.0	504.5	354.7	156.6	198.07	1.791		
10,100.0	6,698.2	6,625.0	6,625.0	69.7	132.5	-81.28	-3,093.0	504.5	447.7	247.7	199.93	2.239		
10,200.0	6,697.2	6,625.0	6,625.0	71.6	132.5	-81.28	-3,093.0	504.5	543.1	341.3	201.79	2.692		
10,300.0	6,696.1	6,625.0	6,625.0	73.4	132.5	-81.28	-3,093.0	504.5	640.0	436.3	203.65	3.143		
10,400.0	6,695.0	6,625.0	6,625.0	75.3	132.5	-81.28	-3,093.0	504.5	737.7	532.1	205.51	3.589		
10,500.0	6,694.0	6,625.0	6,625.0	77.2	132.5	-81.28	-3,093.0	504.5	835.9	628.5	207.38	4.031		
10,600.0	6,692.9	6,625.0	6,625.0	79.1	132.5	-81.28	-3,093.0	504.5	934.5	725.3	209.25	4.466		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	Offset Datum

Offset Design										Suden (Existing) Pad Sec.34-T5N-R64W - Eckhardt 44-34 (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)					
10,000.0	6,699.3	6,644.2	6,641.9	67.8	12.4	-91.73	-4,385.2	506.6	980.2	900.3	79.94	12.262				
10,100.0	6,698.2	6,643.7	6,641.4	69.7	12.4	-91.53	-4,385.2	506.6	881.5	799.7	81.82	10.773				
10,200.0	6,697.2	6,643.2	6,640.9	71.6	12.4	-91.33	-4,385.2	506.6	783.1	699.4	83.71	9.354				
10,300.0	6,696.1	6,642.7	6,640.4	73.4	12.4	-91.12	-4,385.2	506.6	685.1	599.5	85.60	8.004				
10,400.0	6,695.0	6,642.1	6,639.9	75.3	12.4	-90.92	-4,385.2	506.6	587.9	500.4	87.49	6.719				
10,500.0	6,694.0	6,641.6	6,639.3	77.2	12.4	-90.72	-4,385.2	506.6	491.7	402.3	89.38	5.501				
10,600.0	6,692.9	6,641.1	6,638.8	79.1	12.4	-90.51	-4,385.2	506.6	397.4	306.1	91.28	4.354				
10,700.0	6,691.9	6,640.6	6,638.3	80.9	12.4	-90.31	-4,385.2	506.6	306.8	213.6	93.17	3.292				
10,800.0	6,690.8	6,640.0	6,637.8	82.8	12.4	-90.11	-4,385.2	506.6	224.2	129.2	95.06	2.359				
10,900.0	6,689.7	6,639.5	6,637.2	84.7	12.4	-89.91	-4,385.2	506.6	162.6	65.7	96.96	1.677				
10,969.1	6,689.0	6,639.2	6,636.9	86.0	12.4	-89.76	-4,385.2	506.6	147.2	48.9	98.27	1.498	Level 3, CC, ES, SF			
11,000.0	6,688.7	6,639.0	6,636.7	86.6	12.4	-89.70	-4,385.2	506.6	150.4	51.6	98.85	1.522				
11,100.0	6,687.6	6,638.5	6,636.2	88.5	12.4	-89.50	-4,385.2	506.6	197.0	96.2	100.75	1.955				
11,156.0	6,687.0	6,638.2	6,635.9	89.4	12.4	-89.39	-4,385.2	506.6	237.9	136.3	101.61	2.341				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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
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
9,600.0	6,703.6	6,651.0	6,649.6	60.4	11.6	90.90	-3,792.2	-139.9	922.9	851.2	71.66	12.878	
9,700.0	6,702.5	6,649.8	6,648.5	62.2	11.5	90.77	-3,792.2	-139.9	840.5	767.0	73.52	11.432	
9,800.0	6,701.4	6,648.7	6,647.4	64.1	11.5	90.64	-3,792.2	-139.9	762.4	687.0	75.39	10.113	
9,900.0	6,700.4	6,647.5	6,646.2	65.9	11.5	90.51	-3,792.2	-139.9	689.9	612.7	77.26	8.931	
10,000.0	6,699.3	6,646.4	6,645.1	67.8	11.5	90.37	-3,792.2	-139.9	625.1	546.0	79.13	7.901	
10,100.0	6,698.2	6,645.2	6,643.9	69.7	11.5	90.24	-3,792.2	-139.9	570.6	489.6	81.00	7.045	
10,200.0	6,697.2	6,644.1	6,642.7	71.6	11.5	90.11	-3,792.2	-139.9	529.5	446.6	82.87	6.389	
10,300.0	6,696.1	6,642.9	6,641.6	73.4	11.5	89.97	-3,792.2	-139.9	505.1	420.3	84.75	5.960	
10,376.2	6,695.3	6,642.0	6,640.7	74.9	11.5	89.87	-3,792.2	-139.9	499.3	413.1	86.18	5.794 CC, ES	
10,400.0	6,695.0	6,641.7	6,640.4	75.3	11.5	89.84	-3,792.2	-139.9	499.9	413.3	86.63	5.771 SF	
10,500.0	6,694.0	6,640.5	6,639.2	77.2	11.5	89.70	-3,792.3	-139.9	514.4	425.9	88.50	5.813	
10,600.0	6,692.9	6,639.3	6,638.0	79.1	11.5	89.56	-3,792.3	-139.9	547.2	456.8	90.38	6.054	
10,700.0	6,691.9	6,638.1	6,636.8	80.9	11.5	89.43	-3,792.3	-139.9	595.1	502.9	92.27	6.450	
10,800.0	6,690.8	6,636.9	6,635.6	82.8	11.5	89.29	-3,792.3	-139.9	654.9	560.8	94.15	6.956	
10,900.0	6,689.7	6,635.7	6,634.4	84.7	11.5	89.15	-3,792.3	-139.9	723.7	627.6	96.03	7.536	
11,000.0	6,688.7	6,634.5	6,633.2	86.6	11.5	89.01	-3,792.3	-139.9	799.0	701.1	97.91	8.160	
11,100.0	6,687.6	6,633.3	6,631.9	88.5	11.5	88.87	-3,792.3	-139.9	879.3	779.5	99.80	8.811	
11,156.0	6,687.0	6,632.6	6,631.3	89.4	11.5	88.79	-3,792.3	-139.9	925.9	825.3	100.65	9.199	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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
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	0.0	0.0	0.0	0.0	134.72	-455.4	459.8	647.2						
100.0	100.0	96.0	96.0	0.1	0.1	134.67	-455.0	460.3	647.3	647.0	0.24	2,695.883			
200.0	200.0	199.1	199.1	0.3	0.4	134.59	-454.4	461.0	647.3	646.5	0.72	894.076			
300.0	300.0	297.6	297.5	0.6	0.6	134.51	-453.6	461.5	647.1	645.9	1.21	537.031			
303.1	303.1	300.6	300.6	0.6	0.7	134.50	-453.6	461.5	647.1	645.9	1.22	530.409			
400.0	400.0	396.7	396.7	0.8	0.9	134.43	-453.0	462.2	647.2	645.5	1.69	383.313			
500.0	500.0	496.6	496.6	1.0	1.2	134.38	-452.8	462.7	647.3	645.2	2.17	297.756			
600.0	600.0	592.8	592.8	1.2	1.4	134.31	-452.5	463.5	647.8	645.1	2.64	245.007			
700.0	700.0	692.9	692.8	1.5	1.7	134.22	-452.2	464.8	648.5	645.4	3.12	207.981			
800.0	800.0	789.6	789.5	1.7	1.9	134.13	-452.2	466.1	649.5	645.9	3.58	181.395			
900.0	900.0	886.4	886.4	1.9	2.1	134.03	-452.4	467.9	650.9	646.9	4.04	161.218			
1,000.0	1,000.0	986.3	986.2	2.1	2.4	133.93	-452.8	470.0	652.7	648.2	4.50	145.033			
1,100.0	1,100.0	1,084.7	1,084.6	2.4	2.6	133.84	-453.3	472.0	654.5	649.5	4.96	131.961			
1,200.0	1,200.0	1,184.7	1,184.6	2.6	2.8	133.77	-454.1	474.0	656.5	651.1	5.42	121.208			
1,300.0	1,300.0	1,283.6	1,283.5	2.8	3.0	133.74	-455.2	475.6	658.5	652.7	5.86	112.441			
1,400.0	1,400.0	1,382.4	1,382.2	3.0	3.3	133.73	-456.6	477.3	660.7	654.5	6.30	104.952			
1,500.0	1,500.0	1,485.1	1,484.9	3.3	3.5	133.72	-458.1	479.0	662.9	656.2	6.75	98.248			
1,600.0	1,600.0	1,585.2	1,585.0	3.5	3.7	68.12	-459.5	480.2	664.1	656.9	7.17	92.560			
1,700.0	1,699.8	1,685.8	1,685.6	3.7	3.9	68.57	-461.0	481.3	664.0	656.4	7.60	87.355			
1,800.0	1,799.5	1,789.5	1,789.2	3.9	4.2	69.32	-462.0	482.5	662.4	654.3	8.07	82.126			
1,900.0	1,898.9	1,892.1	1,891.9	4.1	4.4	70.16	-462.3	483.6	659.6	651.0	8.56	77.097			
2,000.0	1,998.3	1,996.3	1,996.1	4.4	4.7	70.99	-461.9	484.4	656.4	647.3	9.04	72.619			
2,100.0	2,097.8	2,095.2	2,094.9	4.6	4.9	71.75	-461.1	485.4	653.0	643.5	9.50	68.734			
2,200.0	2,197.2	2,200.5	2,200.2	4.9	5.1	72.48	-459.2	486.9	649.3	639.3	9.97	65.096			
2,300.0	2,296.6	2,310.0	2,309.6	5.1	5.3	73.17	-455.6	488.1	644.5	634.1	10.43	61.801			
2,400.0	2,396.1	2,410.9	2,410.5	5.4	5.5	73.79	-451.5	488.9	638.9	628.1	10.86	58.839			
2,500.0	2,495.5	2,513.9	2,513.3	5.7	5.7	74.45	-447.1	489.4	633.0	621.7	11.29	56.045			
2,600.0	2,594.9	2,611.3	2,610.6	5.9	5.8	75.09	-443.0	489.8	627.2	615.4	11.73	53.477			
2,700.0	2,694.4	2,711.7	2,711.0	6.2	6.0	75.75	-438.6	490.3	621.5	609.3	12.18	51.022			
2,800.0	2,793.8	2,813.1	2,812.3	6.5	6.2	76.46	-434.3	490.5	615.7	603.1	12.64	48.728			
2,900.0	2,893.2	2,916.7	2,915.8	6.8	6.4	77.21	-429.6	490.2	609.4	596.3	13.09	46.551			
3,000.0	2,992.7	3,015.4	3,014.4	7.0	6.5	77.93	-424.7	489.9	603.0	589.5	13.55	44.516			
3,100.0	3,092.1	3,109.9	3,108.7	7.3	6.7	78.69	-420.9	489.5	597.2	583.3	13.99	42.685			
3,200.0	3,191.6	3,208.8	3,207.7	7.6	6.9	79.62	-417.9	488.2	592.0	577.6	14.42	41.052			
3,300.0	3,291.0	3,307.2	3,306.0	7.9	7.0	80.68	-415.8	486.0	587.2	572.3	14.82	39.621			
3,400.0	3,390.4	3,407.7	3,406.4	8.2	7.1	81.81	-413.7	483.4	582.4	567.2	15.22	38.270			
3,500.0	3,489.9	3,500.0	3,498.7	8.5	7.2	82.80	-411.8	481.9	578.3	562.7	15.64	36.985			
3,600.0	3,589.3	3,598.0	3,596.7	8.7	7.4	83.85	-410.3	480.7	575.1	559.1	16.07	35.792			
3,700.0	3,688.7	3,696.5	3,695.2	9.0	7.5	84.95	-409.2	479.3	572.4	555.9	16.49	34.721			
3,800.0	3,788.2	3,798.6	3,797.2	9.3	7.6	86.13	-408.1	477.6	569.8	552.9	16.91	33.696			
3,900.0	3,887.6	3,898.9	3,897.5	9.6	7.7	87.36	-406.9	475.3	567.1	549.8	17.33	32.729			
4,000.0	3,987.0	4,000.3	3,998.8	9.9	7.9	88.66	-405.7	472.3	564.3	546.6	17.74	31.804			
4,100.0	4,086.5	4,099.2	4,097.7	10.2	8.0	89.94	-404.4	469.3	561.7	543.5	18.17	30.918			
4,200.0	4,185.9	4,198.4	4,196.9	10.5	8.1	91.24	-403.1	466.4	559.4	540.8	18.60	30.076			
4,300.0	4,285.3	4,299.7	4,298.1	10.8	8.3	92.59	-401.6	463.1	557.1	538.1	19.04	29.265			
4,400.0	4,384.8	4,399.0	4,397.3	11.1	8.4	93.94	-400.0	459.7	555.0	535.5	19.48	28.489			
4,500.0	4,484.2	4,501.9	4,500.1	11.3	8.6	95.36	-398.1	456.0	552.9	532.9	19.94	27.729			
4,600.0	4,583.7	4,612.4	4,610.4	11.6	8.8	97.05	-394.9	450.1	549.5	529.1	20.41	26.921			
4,700.0	4,683.1	4,712.7	4,710.4	11.9	9.0	98.70	-391.2	443.5	545.6	524.7	20.88	26.135			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Reference	Offset	Reference	Offset	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
4,800.0	4,782.5	4,812.2	4,809.6	12.2	9.2	100.38	-387.4	436.7	541.8	520.5	21.34	25.393		
4,900.0	4,882.0	4,910.1	4,907.2	12.5	9.3	102.01	-383.5	430.5	538.5	516.7	21.80	24.700		
5,000.0	4,981.4	5,000.0	4,997.0	12.8	9.5	103.40	-380.1	426.0	536.2	513.9	22.26	24.087		
5,084.4	5,065.3	5,079.9	5,076.8	13.1	9.7	104.52	-377.8	423.2	535.5	512.8	22.66	23.629		
5,100.0	5,080.8	5,094.0	5,090.9	13.1	9.7	104.70	-377.5	422.9	535.5	512.8	22.73	23.555		
5,200.0	5,180.3	5,189.3	5,186.1	13.4	9.9	105.83	-375.8	421.9	536.4	513.2	23.23	23.093		
5,300.0	5,279.8	5,284.3	5,281.1	13.6	10.1	106.66	-374.6	422.7	537.9	514.2	23.68	22.714		
5,400.0	5,379.6	5,387.2	5,384.0	13.8	10.4	107.10	-373.5	424.4	538.7	514.6	24.09	22.365		
5,500.0	5,479.6	5,481.5	5,478.4	14.0	10.6	107.19	-372.5	425.6	538.6	514.1	24.45	22.030		
5,600.0	5,579.6	5,581.5	5,578.3	14.2	10.7	172.77	-372.2	427.2	538.5	513.7	24.81	21.706		
5,700.0	5,679.6	5,681.1	5,677.8	14.4	10.9	172.57	-371.8	429.0	538.3	513.1	25.19	21.366		
5,757.2	5,736.8	5,737.5	5,734.3	14.5	11.0	172.45	-371.6	430.2	538.2	512.8	25.41	21.181		
5,800.0	5,779.6	5,779.7	5,776.5	14.6	11.1	172.35	-371.5	431.0	538.3	512.7	25.57	21.047		
5,900.0	5,879.6	5,881.2	5,877.9	14.7	11.3	172.13	-371.2	433.1	538.3	512.3	25.96	20.733		
6,000.0	5,979.6	5,977.7	5,974.4	14.9	11.5	-8.10	-371.0	435.2	538.2	511.9	26.33	20.444		
6,100.0	6,079.2	6,077.0	6,073.7	15.1	11.7	-8.60	-371.2	437.9	530.6	504.2	26.35	20.136		
6,200.0	6,176.8	6,177.2	6,173.8	15.2	11.9	-9.56	-371.2	440.8	509.8	483.9	25.99	19.621		
6,300.0	6,270.8	6,269.2	6,265.8	15.3	12.1	-11.05	-370.9	443.5	476.6	451.4	25.24	18.887		
6,400.0	6,359.6	6,356.8	6,353.4	15.3	12.2	-13.50	-370.9	446.9	432.3	408.1	24.16	17.888		
6,500.0	6,441.6	6,436.9	6,433.4	15.4	12.4	-17.42	-371.0	450.4	377.5	354.6	22.92	16.472		
6,600.0	6,515.5	6,508.1	6,504.4	15.6	12.5	-23.91	-371.5	454.3	314.3	292.4	21.87	14.369		
6,700.0	6,580.0	6,573.0	6,569.2	15.8	12.6	-35.22	-372.2	458.0	244.8	222.7	22.03	11.109		
6,800.0	6,633.9	6,628.3	6,624.4	16.2	12.8	-53.91	-372.9	461.0	173.5	148.7	24.75	7.010		
6,900.0	6,676.4	6,671.5	6,667.6	16.8	12.8	-76.90	-373.1	463.5	115.8	87.5	28.29	4.093		
6,951.2	6,693.5	6,688.6	6,684.7	17.2	12.9	-86.37	-373.1	464.6	105.4	76.1	29.24	3.604 CC, ES, SF		
7,000.0	6,706.8	6,701.7	6,697.7	17.6	12.9	-92.41	-373.1	465.3	115.3	85.6	29.67	3.885		
7,100.0	6,724.4	6,719.4	6,715.4	18.6	12.9	-95.10	-373.1	466.4	179.0	148.4	30.61	5.847		
7,200.0	6,729.1	6,724.3	6,720.2	19.8	12.9	-85.22	-373.1	466.7	265.8	233.9	32.00	8.309		
7,300.0	6,728.1	6,723.3	6,719.2	21.0	12.9	-84.70	-373.1	466.7	359.6	326.3	33.27	10.809		
7,400.0	6,727.0	6,722.3	6,718.2	22.3	12.9	-84.16	-373.1	466.6	456.0	421.3	34.62	13.168		
7,500.0	6,725.9	6,721.2	6,717.2	23.8	12.9	-83.61	-373.1	466.5	553.6	517.6	36.05	15.355		
7,600.0	6,724.9	6,720.2	6,716.1	25.3	12.9	-83.04	-373.1	466.5	652.0	614.5	37.54	17.367		
7,700.0	6,723.8	6,719.1	6,715.1	26.8	12.9	-82.47	-373.1	466.4	750.8	711.7	39.07	19.215		
7,800.0	6,722.7	6,717.9	6,713.9	28.4	12.9	-81.88	-373.1	466.3	849.9	809.2	40.64	20.913		
7,900.0	6,721.7	6,716.8	6,712.8	30.0	12.9	-81.27	-373.1	466.3	949.2	906.9	42.23	22.474		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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)			
7,400.0	6,727.0	6,708.6	6,707.8	22.3	12.2	-86.31	-1,731.8	466.4	921.9	888.0	33.90	27.197		
7,500.0	6,725.9	6,709.2	6,708.4	23.8	12.2	-86.62	-1,731.8	466.4	822.7	787.3	35.36	23.268		
7,600.0	6,724.9	6,709.8	6,709.0	25.3	12.2	-86.94	-1,731.8	466.4	723.7	686.8	36.88	19.622		
7,700.0	6,723.8	6,710.3	6,709.6	26.8	12.2	-87.25	-1,731.8	466.4	624.9	586.5	38.45	16.252		
7,800.0	6,722.7	6,710.9	6,710.2	28.4	12.2	-87.56	-1,731.8	466.4	526.7	486.6	40.07	13.144		
7,900.0	6,721.7	6,711.5	6,710.8	30.0	12.2	-87.88	-1,731.9	466.4	429.3	387.5	41.72	10.288		
8,000.0	6,720.6	6,712.1	6,711.4	31.7	12.2	-88.19	-1,731.9	466.4	333.4	290.0	43.41	7.680		
8,100.0	6,719.5	6,712.7	6,711.9	33.4	12.2	-88.51	-1,731.9	466.5	240.8	195.7	45.12	5.338		
8,200.0	6,718.5	6,713.3	6,712.5	35.1	12.2	-88.82	-1,731.9	466.5	157.7	110.8	46.85	3.365		
8,300.0	6,717.4	6,713.9	6,713.1	36.8	12.2	-89.13	-1,731.9	466.5	108.2	59.6	48.60	2.227		
8,315.7	6,717.2	6,714.0	6,713.2	37.1	12.2	-89.18	-1,731.9	466.5	107.1	58.2	48.87	2.191CC, ES, SF		
8,400.0	6,716.3	6,714.5	6,713.7	38.6	12.2	-89.45	-1,731.9	466.5	136.3	85.9	50.36	2.706		
8,500.0	6,715.3	6,715.0	6,714.3	40.3	12.2	-89.76	-1,731.9	466.5	213.1	161.0	52.14	4.088		
8,600.0	6,714.2	6,715.6	6,714.9	42.1	12.2	-90.08	-1,731.9	466.5	303.8	249.9	53.92	5.634		
8,700.0	6,713.1	6,716.2	6,715.5	43.9	12.2	-90.39	-1,731.9	466.5	398.9	343.2	55.72	7.159		
8,800.0	6,712.1	6,716.8	6,716.1	45.7	12.2	-90.70	-1,731.9	466.5	496.0	438.5	57.53	8.622		
8,900.0	6,711.0	6,717.4	6,716.6	47.5	12.2	-91.02	-1,731.9	466.5	594.0	534.7	59.34	10.010		
9,000.0	6,710.0	6,718.0	6,717.2	49.3	12.2	-91.33	-1,732.0	466.5	692.6	631.5	61.16	11.325		
9,100.0	6,708.9	6,718.6	6,717.8	51.1	12.2	-91.64	-1,732.0	466.5	791.6	728.6	62.98	12.568		
9,200.0	6,707.8	6,719.2	6,718.4	53.0	12.2	-91.96	-1,732.0	466.5	890.7	825.9	64.81	13.744		
9,300.0	6,706.8	6,719.7	6,719.0	54.8	12.2	-92.27	-1,732.0	466.6	990.1	923.5	66.64	14.858		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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)					
6,900.0	6,676.4	6,644.1	6,641.4	16.8	13.0	62.58	-1,099.6	-204.7	960.0	933.4	26.55	36.157			
7,000.0	6,706.8	6,674.9	6,672.3	17.6	13.1	72.98	-1,099.8	-205.0	885.0	856.3	28.75	30.780			
7,100.0	6,724.4	6,693.1	6,690.4	18.6	13.1	82.56	-1,099.9	-205.1	811.9	781.2	30.66	26.480			
7,200.0	6,729.1	6,698.3	6,695.6	19.8	13.1	89.71	-1,099.9	-205.2	743.5	711.3	32.13	23.136			
7,300.0	6,728.1	6,697.7	6,695.1	21.0	13.1	89.66	-1,099.9	-205.2	682.6	649.2	33.42	20.428			
7,400.0	6,727.0	6,697.2	6,694.5	22.3	13.1	89.60	-1,099.9	-205.2	631.9	597.1	34.79	18.160			
7,500.0	6,725.9	6,696.6	6,694.0	23.8	13.1	89.55	-1,099.9	-205.2	593.7	557.5	36.25	16.380			
7,600.0	6,724.9	6,696.1	6,693.5	25.3	13.1	89.49	-1,099.9	-205.2	570.8	533.0	37.77	15.114			
7,683.7	6,724.0	6,695.6	6,693.0	26.5	13.1	89.44	-1,099.9	-205.2	564.6	525.5	39.08	14.447 CC			
7,700.0	6,723.8	6,695.5	6,692.9	26.8	13.1	89.44	-1,099.9	-205.2	564.8	525.5	39.33	14.359 ES			
7,800.0	6,722.7	6,695.0	6,692.4	28.4	13.1	89.38	-1,099.9	-205.2	576.4	535.5	40.95	14.077 SF			
7,900.0	6,721.7	6,694.5	6,691.8	30.0	13.1	89.33	-1,099.9	-205.2	604.6	562.0	42.60	14.193			
8,000.0	6,720.6	6,693.9	6,691.3	31.7	13.1	89.27	-1,099.9	-205.1	647.1	602.9	44.28	14.615			
8,100.0	6,719.5	6,693.4	6,690.7	33.4	13.1	89.21	-1,099.9	-205.1	701.5	655.5	45.99	15.254			
8,200.0	6,718.5	6,692.8	6,690.2	35.1	13.1	89.16	-1,099.9	-205.1	765.1	717.3	47.71	16.034			
8,300.0	6,717.4	6,692.3	6,689.6	36.8	13.1	89.10	-1,099.9	-205.1	835.8	786.3	49.46	16.898			
8,400.0	6,716.3	6,691.7	6,689.1	38.6	13.1	89.05	-1,099.9	-205.1	912.0	860.8	51.22	17.805			
8,500.0	6,715.3	6,691.2	6,688.6	40.3	13.1	88.99	-1,099.9	-205.1	992.5	939.5	53.00	18.726			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34R-423 - Wellbore #1 - Plan #2 (8-01-14)														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			
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-30.7	30.7						
100.0	100.0	99.0	99.0	0.1	0.1	-90.01	0.0	-30.7	30.7	30.4	0.22	137.068			
200.0	200.0	199.0	199.0	0.3	0.3	-90.01	0.0	-30.7	30.7	30.0	0.67	45.613			
300.0	300.0	299.0	299.0	0.6	0.6	-90.01	0.0	-30.7	30.7	29.5	1.12	27.331			
400.0	400.0	399.0	399.0	0.8	0.8	-90.01	0.0	-30.7	30.7	29.1	1.57	19.511			
500.0	500.0	499.0	499.0	1.0	1.0	-90.01	0.0	-30.7	30.7	28.6	2.02	15.171			
600.0	600.0	599.0	599.0	1.2	1.2	-90.01	0.0	-30.7	30.7	28.2	2.47	12.410			
700.0	700.0	699.0	699.0	1.5	1.5	-90.01	0.0	-30.7	30.7	27.7	2.92	10.499			
800.0	800.0	799.0	799.0	1.7	1.7	-90.01	0.0	-30.7	30.7	27.3	3.37	9.098			
900.0	900.0	899.0	899.0	1.9	1.9	-90.01	0.0	-30.7	30.7	26.8	3.82	8.027			
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-90.01	0.0	-30.7	30.7	26.4	4.27	7.182			
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	-90.01	0.0	-30.7	30.7	25.9	4.72	6.498			
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	-90.01	0.0	-30.7	30.7	25.5	5.17	5.932			
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	-90.01	0.0	-30.7	30.7	25.0	5.62	5.458			
1,400.0	1,400.0	1,399.0	1,399.0	3.0	3.0	-90.01	0.0	-30.7	30.7	24.6	6.07	5.053			
1,500.0	1,500.0	1,499.0	1,499.0	3.3	3.3	-90.01	0.0	-30.7	30.7	24.1	6.52	4.705 CC, ES			
1,600.0	1,600.0	1,599.0	1,599.0	3.5	3.5	-157.01	0.0	-30.7	32.3	25.3	6.95	4.638			
1,700.0	1,699.8	1,698.8	1,698.8	3.7	3.7	-160.13	0.0	-30.7	37.1	29.7	7.38	5.031			
1,800.0	1,799.5	1,798.5	1,798.5	3.9	3.9	-163.82	0.0	-30.7	45.4	37.6	7.80	5.825			
1,900.0	1,898.9	1,897.9	1,897.9	4.1	4.2	-166.86	0.0	-30.7	55.7	47.5	8.23	6.765			
2,000.0	1,998.3	1,997.3	1,997.3	4.4	4.4	-168.95	0.0	-30.7	66.1	57.4	8.67	7.620			
2,100.0	2,097.8	2,096.8	2,096.8	4.6	4.6	-170.47	0.0	-30.7	76.5	67.4	9.11	8.398			
2,200.0	2,197.2	2,196.2	2,196.2	4.9	4.8	-171.63	0.0	-30.7	87.0	77.4	9.55	9.106			
2,300.0	2,296.6	2,295.6	2,295.6	5.1	5.0	-172.54	0.0	-30.7	97.5	87.5	10.00	9.753			
2,400.0	2,396.1	2,395.1	2,395.1	5.4	5.3	-173.27	0.0	-30.7	108.0	97.6	10.44	10.346			
2,500.0	2,495.5	2,494.5	2,494.5	5.7	5.5	-173.87	0.0	-30.7	118.6	107.7	10.89	10.890			
2,600.0	2,594.9	2,597.7	2,597.7	5.9	5.7	-174.01	1.2	-29.6	127.7	116.4	11.34	11.266			
2,700.0	2,694.4	2,701.6	2,701.4	6.2	6.0	-173.33	5.3	-26.0	133.8	122.0	11.79	11.352			
2,800.0	2,793.8	2,804.5	2,804.0	6.5	6.2	-171.92	12.0	-20.1	136.9	124.7	12.24	11.190			
2,900.0	2,893.2	2,904.4	2,903.4	6.8	6.4	-170.40	19.3	-13.7	139.4	126.7	12.69	10.985			
3,000.0	2,992.7	3,004.3	3,002.8	7.0	6.6	-168.93	26.5	-7.4	141.9	128.7	13.14	10.798			
3,100.0	3,092.1	3,104.2	3,102.3	7.3	6.9	-167.52	33.8	-1.0	144.5	130.9	13.60	10.626			
3,200.0	3,191.6	3,204.1	3,201.7	7.6	7.1	-166.15	41.0	5.4	147.2	133.1	14.06	10.468			
3,300.0	3,291.0	3,304.0	3,301.1	7.9	7.4	-164.84	48.3	11.7	149.9	135.4	14.52	10.322			
3,400.0	3,390.4	3,403.9	3,400.6	8.2	7.6	-163.57	55.5	18.1	152.8	137.8	15.00	10.188			
3,500.0	3,489.9	3,503.8	3,500.0	8.5	7.8	-162.35	62.8	24.5	155.7	140.2	15.47	10.063			
3,600.0	3,589.3	3,603.8	3,599.5	8.7	8.1	-161.17	70.0	30.8	158.7	142.7	15.95	9.947			
3,700.0	3,688.7	3,703.7	3,698.9	9.0	8.3	-160.04	77.3	37.2	161.7	145.3	16.43	9.840			
3,800.0	3,788.2	3,803.6	3,798.3	9.3	8.6	-158.95	84.5	43.5	164.8	147.9	16.92	9.740			
3,900.0	3,887.6	3,903.5	3,897.8	9.6	8.9	-157.91	91.8	49.9	168.0	150.6	17.42	9.646			
4,000.0	3,987.0	4,003.4	3,997.2	9.9	9.1	-156.90	99.0	56.3	171.2	153.3	17.91	9.559			
4,100.0	4,086.5	4,103.3	4,096.6	10.2	9.4	-155.92	106.3	62.6	174.5	156.1	18.41	9.477			
4,200.0	4,185.9	4,203.2	4,196.1	10.5	9.6	-154.99	113.5	69.0	177.8	158.9	18.92	9.400			
4,300.0	4,285.3	4,303.1	4,295.5	10.8	9.9	-154.09	120.8	75.3	181.2	161.7	19.42	9.328			
4,400.0	4,384.8	4,403.0	4,395.0	11.1	10.2	-153.22	128.0	81.7	184.6	164.6	19.93	9.260			
4,500.0	4,484.2	4,502.9	4,494.4	11.3	10.4	-152.38	135.2	88.1	188.0	167.6	20.45	9.196			
4,600.0	4,583.7	4,602.8	4,593.8	11.6	10.7	-151.57	142.5	94.4	191.5	170.5	20.96	9.136			
4,700.0	4,683.1	4,702.7	4,693.3	11.9	11.0	-150.80	149.7	100.8	195.0	173.6	21.48	9.079			
4,800.0	4,782.5	4,800.0	4,790.2	12.2	11.2	-150.25	156.2	106.5	199.1	177.1	21.97	9.060			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34R-423 - Wellbore #1 - Plan #2 (8-01-14)													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		
4,900.0	4,882.0	4,895.7	4,885.8	12.5	11.4	-150.43	160.3	110.0	205.0	182.6	22.40	9.152		
5,000.0	4,981.4	4,991.2	4,981.2	12.8	11.6	-151.30	161.9	111.5	212.9	190.1	22.79	9.343		
5,100.0	5,080.8	5,089.8	5,079.8	13.1	11.7	-152.59	162.0	111.5	222.2	199.0	23.18	9.588		
5,200.0	5,180.3	5,189.3	5,179.3	13.4	11.9	-153.79	162.0	111.5	231.7	208.1	23.59	9.821		
5,300.0	5,279.8	5,288.8	5,278.8	13.6	12.2	-154.84	162.0	111.5	240.2	216.1	24.01	10.001		
5,400.0	5,379.6	5,388.6	5,378.6	13.8	12.4	-155.48	162.0	111.5	245.6	221.2	24.40	10.064		
5,500.0	5,479.6	5,488.6	5,478.6	14.0	12.6	-155.73	162.0	111.5	247.8	223.0	24.77	10.004		
5,600.0	5,579.6	5,588.6	5,578.6	14.2	12.8	-90.00	162.0	111.5	247.9	222.7	25.17	9.849		
5,700.0	5,679.6	5,688.6	5,678.6	14.4	13.0	-90.00	162.0	111.5	247.9	222.3	25.59	9.686		
5,800.0	5,779.6	5,788.6	5,778.6	14.6	13.2	-90.00	162.0	111.5	247.9	221.8	26.01	9.529		
5,900.0	5,879.6	5,888.6	5,878.6	14.7	13.4	-90.00	162.0	111.5	247.9	221.4	26.43	9.376		
5,964.2	5,943.8	5,952.8	5,942.8	14.9	13.6	90.09	162.0	111.5	247.9	221.1	26.71	9.280		
6,000.0	5,979.6	5,988.6	5,978.6	14.9	13.6	90.03	162.0	111.5	247.9	221.0	26.86	9.229		
6,100.0	6,079.2	6,088.6	6,078.6	15.1	13.8	91.73	161.0	111.5	248.0	220.7	27.26	9.097		
6,200.0	6,176.8	6,189.7	6,179.0	15.2	14.0	93.97	149.1	111.5	248.5	220.9	27.56	9.016		
6,300.0	6,270.8	6,292.3	6,278.2	15.3	14.1	96.15	123.7	111.5	249.3	221.5	27.77	8.977		
6,400.0	6,359.6	6,396.1	6,374.3	15.3	14.2	98.21	84.6	111.5	250.4	222.5	27.93	8.967		
6,500.0	6,441.6	6,501.3	6,465.4	15.4	14.3	100.13	32.2	111.5	251.8	223.7	28.10	8.959		
6,600.0	6,515.5	6,607.7	6,549.3	15.6	14.4	101.85	-33.1	111.5	253.3	224.9	28.39	8.922		
6,700.0	6,580.0	6,715.3	6,624.1	15.8	14.6	103.36	-110.4	111.5	254.8	225.9	28.89	8.819		
6,800.0	6,633.9	6,824.0	6,687.9	16.2	15.1	104.63	-198.2	111.5	256.2	226.5	29.72	8.620		
6,900.0	6,676.4	6,933.5	6,738.9	16.8	15.8	105.62	-295.0	111.5	257.4	226.4	30.96	8.315		
7,000.0	6,706.8	7,043.7	6,775.8	17.6	16.7	106.33	-398.8	111.5	258.3	225.6	32.64	7.912		
7,100.0	6,724.4	7,154.4	6,797.4	18.6	17.9	106.74	-507.2	111.5	258.8	224.1	34.77	7.443		
7,200.0	6,729.1	7,263.7	6,803.3	19.8	19.1	106.88	-616.3	111.5	259.0	221.8	37.25	6.953		
7,300.0	6,728.1	7,363.7	6,803.3	21.0	20.4	107.10	-716.2	111.5	259.3	219.6	39.71	6.531		
7,400.0	6,727.0	7,463.6	6,803.3	22.3	21.8	107.33	-816.2	111.5	259.7	217.3	42.33	6.135		
7,500.0	6,725.9	7,563.6	6,803.4	23.8	23.3	107.56	-916.2	111.5	260.0	214.9	45.09	5.766		
7,600.0	6,724.9	7,663.6	6,803.4	25.3	24.8	107.79	-1,016.2	111.5	260.3	212.4	47.96	5.428		
7,700.0	6,723.8	7,763.6	6,803.4	26.8	26.3	108.01	-1,116.2	111.5	260.6	209.7	50.93	5.118		
7,800.0	6,722.7	7,863.6	6,803.4	28.4	27.9	108.24	-1,216.2	111.5	261.0	207.0	53.97	4.836		
7,900.0	6,721.7	7,963.6	6,803.4	30.0	29.6	108.46	-1,316.2	111.5	261.3	204.3	57.07	4.579		
8,000.0	6,720.6	8,063.6	6,803.4	31.7	31.3	108.69	-1,416.2	111.5	261.7	201.4	60.23	4.345		
8,100.0	6,719.5	8,163.6	6,803.5	33.4	33.0	108.91	-1,516.2	111.5	262.0	198.6	63.43	4.131		
8,200.0	6,718.5	8,263.6	6,803.5	35.1	34.7	109.14	-1,616.2	111.5	262.4	195.7	66.66	3.936		
8,300.0	6,717.4	8,363.6	6,803.5	36.8	36.4	109.36	-1,716.2	111.5	262.7	192.8	69.92	3.758		
8,400.0	6,716.3	8,463.6	6,803.5	38.6	38.2	109.58	-1,816.2	111.5	263.1	189.9	73.20	3.594		
8,500.0	6,715.3	8,563.6	6,803.5	40.3	40.0	109.80	-1,916.2	111.5	263.5	187.0	76.50	3.444		
8,600.0	6,714.2	8,663.6	6,803.6	42.1	41.8	110.02	-2,016.2	111.5	263.8	184.0	79.82	3.305		
8,700.0	6,713.1	8,763.6	6,803.6	43.9	43.6	110.24	-2,116.2	111.5	264.2	181.1	83.15	3.177		
8,800.0	6,712.1	8,863.6	6,803.6	45.7	45.4	110.46	-2,216.2	111.5	264.6	178.1	86.49	3.059		
8,900.0	6,711.0	8,963.6	6,803.6	47.5	47.2	110.68	-2,316.2	111.5	265.0	175.1	89.83	2.949		
9,000.0	6,710.0	9,063.6	6,803.6	49.3	49.0	110.90	-2,416.1	111.5	265.3	172.2	93.18	2.848		
9,100.0	6,708.9	9,163.5	6,803.6	51.1	50.9	111.12	-2,516.1	111.5	265.7	169.2	96.54	2.753		
9,200.0	6,707.8	9,263.5	6,803.7	53.0	52.7	111.34	-2,616.1	111.5	266.1	166.2	99.89	2.664		
9,300.0	6,706.8	9,363.5	6,803.7	54.8	54.6	111.55	-2,716.1	111.5	266.5	163.3	103.25	2.581		
9,400.0	6,705.7	9,463.5	6,803.7	56.7	56.4	111.77	-2,816.1	111.5	266.9	160.3	106.61	2.504		
9,500.0	6,704.6	9,563.5	6,803.7	58.5	58.3	111.98	-2,916.1	111.5	267.3	157.4	109.96	2.431		
9,600.0	6,703.6	9,663.5	6,803.7	60.4	60.1	112.20	-3,016.1	111.5	267.7	154.4	113.32	2.363		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	Offset Datum

Offset Design Suden 34U-HZ Pad Sec.34-T5N-R64W - Suden 34R-423 - Wellbore #1 - Plan #2 (8-01-14)													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)	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	6,702.5	9,763.5	6,803.7	62.2	62.0	112.41	-3,116.1	111.5	268.1	151.5	116.67	2.298		
9,800.0	6,701.4	9,863.5	6,803.8	64.1	63.9	112.63	-3,216.1	111.5	268.6	148.5	120.01	2.238		
9,900.0	6,700.4	9,963.5	6,803.8	65.9	65.7	112.84	-3,316.1	111.5	269.0	145.6	123.36	2.181		
10,000.0	6,699.3	10,063.5	6,803.8	67.8	67.6	113.05	-3,416.1	111.5	269.4	142.7	126.69	2.126		
10,100.0	6,698.2	10,163.5	6,803.8	69.7	69.5	113.26	-3,516.1	111.5	269.8	139.8	130.03	2.075		
10,200.0	6,697.2	10,263.5	6,803.8	71.6	71.3	113.47	-3,616.1	111.5	270.3	136.9	133.35	2.027		
10,300.0	6,696.1	10,363.5	6,803.9	73.4	73.2	113.68	-3,716.1	111.5	270.7	134.0	136.68	1.981		
10,400.0	6,695.0	10,463.5	6,803.9	75.3	75.1	113.89	-3,816.1	111.5	271.1	131.1	139.99	1.937		
10,500.0	6,694.0	10,563.5	6,803.9	77.2	77.0	114.10	-3,916.1	111.5	271.6	128.3	143.30	1.895		
10,600.0	6,692.9	10,663.5	6,803.9	79.1	78.9	114.31	-4,016.1	111.5	272.0	125.4	146.60	1.856		
10,700.0	6,691.9	10,763.5	6,803.9	80.9	80.8	114.52	-4,116.0	111.5	272.5	122.6	149.89	1.818		
10,800.0	6,690.8	10,863.5	6,803.9	82.8	82.7	114.72	-4,216.0	111.5	272.9	119.7	153.18	1.782		
10,900.0	6,689.7	10,963.4	6,804.0	84.7	84.5	114.93	-4,316.0	111.5	273.4	116.9	156.46	1.747		
11,000.0	6,688.7	11,063.4	6,804.0	86.6	86.4	115.13	-4,416.0	111.5	273.8	114.1	159.73	1.714		
11,100.0	6,687.6	11,163.4	6,804.0	88.5	88.3	115.34	-4,516.0	111.5	274.3	111.3	162.99	1.683		
11,156.0	6,687.0	11,219.4	6,804.0	89.4	89.4	115.45	-4,572.0	111.5	274.6	109.9	164.62	1.668 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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		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	0.0	0.0	0.0	0.0	89.98	0.0	30.7	30.7						
100.0	100.0	100.0	100.0	0.1	0.1	89.98	0.0	30.7	30.7	30.4	0.22	136.384			
200.0	200.0	200.0	200.0	0.3	0.3	89.98	0.0	30.7	30.7	30.0	0.67	45.461			
300.0	300.0	300.0	300.0	0.6	0.6	89.98	0.0	30.7	30.7	29.5	1.12	27.277			
400.0	400.0	400.0	400.0	0.8	0.8	89.98	0.0	30.7	30.7	29.1	1.57	19.483			
500.0	500.0	500.0	500.0	1.0	1.0	89.98	0.0	30.7	30.7	28.6	2.02	15.154			
600.0	600.0	600.0	600.0	1.2	1.2	89.98	0.0	30.7	30.7	28.2	2.47	12.399			
700.0	700.0	700.0	700.0	1.5	1.5	89.98	0.0	30.7	30.7	27.7	2.92	10.491			
800.0	800.0	800.0	800.0	1.7	1.7	89.98	0.0	30.7	30.7	27.3	3.37	9.092			
900.0	900.0	900.0	900.0	1.9	1.9	89.98	0.0	30.7	30.7	26.8	3.82	8.023			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.98	0.0	30.7	30.7	26.4	4.27	7.178 CC, ES			
1,100.0	1,100.0	1,098.9	1,098.9	2.4	2.3	89.34	0.4	32.3	32.3	27.6	4.71	6.870			
1,200.0	1,200.0	1,197.6	1,197.5	2.6	2.6	87.76	1.5	37.3	37.4	32.3	5.14	7.280			
1,300.0	1,300.0	1,295.8	1,295.3	2.8	2.8	85.90	3.3	45.6	45.9	40.3	5.58	8.223			
1,400.0	1,400.0	1,393.4	1,392.1	3.0	3.0	84.23	5.8	57.0	57.8	51.8	6.04	9.570			
1,500.0	1,500.0	1,490.0	1,487.6	3.3	3.3	82.88	8.9	71.5	73.1	66.6	6.52	11.209			
1,600.0	1,600.0	1,588.1	1,584.1	3.5	3.6	16.36	12.6	88.5	89.1	82.3	6.88	12.953			
1,700.0	1,699.8	1,687.2	1,681.7	3.7	3.9	16.33	16.4	105.8	102.0	94.7	7.30	13.962			
1,800.0	1,799.5	1,786.8	1,779.6	3.9	4.2	16.83	20.2	123.1	111.5	103.7	7.73	14.426			
1,900.0	1,898.9	1,886.5	1,877.7	4.1	4.6	17.56	24.0	140.5	119.2	111.0	8.17	14.580			
2,000.0	1,998.3	1,986.2	1,975.8	4.4	4.9	18.21	27.8	157.9	126.9	118.3	8.63	14.707			
2,100.0	2,097.8	2,085.8	2,073.9	4.6	5.3	18.78	31.6	175.3	134.6	125.5	9.09	14.813			
2,200.0	2,197.2	2,185.5	2,172.0	4.9	5.7	19.29	35.4	192.7	142.4	132.8	9.55	14.903			
2,300.0	2,296.6	2,285.2	2,270.1	5.1	6.0	19.74	39.2	210.0	150.1	140.1	10.02	14.979			
2,400.0	2,396.1	2,384.9	2,368.2	5.4	6.4	20.16	43.0	227.4	157.9	147.4	10.50	15.044			
2,500.0	2,495.5	2,484.6	2,466.3	5.7	6.8	20.53	46.8	244.8	165.7	154.7	10.97	15.099			
2,600.0	2,594.9	2,584.3	2,564.4	5.9	7.2	20.87	50.6	262.2	173.5	162.0	11.45	15.146			
2,700.0	2,694.4	2,684.0	2,662.5	6.2	7.6	21.18	54.4	279.5	181.2	169.3	11.93	15.186			
2,800.0	2,793.8	2,783.7	2,760.6	6.5	8.0	21.47	58.2	296.9	189.0	176.6	12.42	15.221			
2,900.0	2,893.2	2,883.4	2,858.6	6.8	8.3	21.73	62.0	314.3	196.8	183.9	12.91	15.250			
3,000.0	2,992.7	2,983.1	2,956.7	7.0	8.7	21.97	65.8	331.7	204.6	191.2	13.40	15.275			
3,100.0	3,092.1	3,082.8	3,054.8	7.3	9.1	22.20	69.6	349.1	212.4	198.5	13.89	15.297			
3,200.0	3,191.6	3,182.5	3,152.9	7.6	9.5	22.40	73.4	366.4	220.2	205.9	14.38	15.316			
3,300.0	3,291.0	3,282.1	3,251.0	7.9	9.9	22.60	77.2	383.8	228.0	213.2	14.87	15.332			
3,400.0	3,390.4	3,381.8	3,349.1	8.2	10.3	22.78	81.0	401.2	235.9	220.5	15.37	15.345			
3,500.0	3,489.9	3,481.5	3,447.2	8.5	10.7	22.95	84.8	418.6	243.7	227.8	15.87	15.357			
3,600.0	3,589.3	3,581.2	3,545.3	8.7	11.1	23.11	88.6	436.0	251.5	235.1	16.37	15.367			
3,700.0	3,688.7	3,680.9	3,643.4	9.0	11.5	23.26	92.4	453.3	259.3	242.4	16.86	15.375			
3,800.0	3,788.2	3,780.6	3,741.5	9.3	11.9	23.40	96.2	470.7	267.1	249.8	17.37	15.383			
3,900.0	3,887.6	3,880.3	3,839.6	9.6	12.3	23.53	100.0	488.1	274.9	257.1	17.87	15.389			
4,000.0	3,987.0	3,980.0	3,937.7	9.9	12.7	23.66	103.8	505.5	282.8	264.4	18.37	15.394			
4,100.0	4,086.5	4,079.7	4,035.7	10.2	13.1	23.78	107.6	522.9	290.6	271.7	18.87	15.398			
4,200.0	4,185.9	4,179.4	4,133.8	10.5	13.5	23.89	111.4	540.2	298.4	279.0	19.38	15.402			
4,300.0	4,285.3	4,279.1	4,231.9	10.8	13.9	24.00	115.2	557.6	306.2	286.4	19.88	15.404			
4,400.0	4,384.8	4,378.8	4,330.0	11.1	14.3	24.10	118.9	575.0	314.1	293.7	20.38	15.407			
4,500.0	4,484.2	4,478.4	4,428.1	11.3	14.7	24.20	122.7	592.4	321.9	301.0	20.89	15.408			
4,600.0	4,583.7	4,578.1	4,526.2	11.6	15.1	24.29	126.5	609.8	329.7	308.3	21.40	15.410			
4,700.0	4,683.1	4,677.8	4,624.3	11.9	15.5	24.38	130.3	627.1	337.5	315.6	21.90	15.411			
4,800.0	4,782.5	4,777.5	4,722.4	12.2	15.9	24.46	134.1	644.5	345.4	323.0	22.41	15.411			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
							+N/-S (ft)	+E/-W (ft)							
4,900.0	4,882.0	4,877.2	4,820.5	12.5	16.3	24.54	137.9	661.9	353.2	330.3	22.92	15.411			
5,000.0	4,981.4	4,976.9	4,918.6	12.8	16.7	24.62	141.7	679.3	361.0	337.6	23.43	15.411			
5,100.0	5,080.8	5,076.6	5,016.7	13.1	17.1	24.69	145.5	696.7	368.9	344.9	23.93	15.411			
5,200.0	5,180.3	5,176.3	5,114.8	13.4	17.5	24.76	149.3	714.0	376.7	352.2	24.44	15.411			
5,300.0	5,279.8	5,279.6	5,216.4	13.6	17.9	24.82	153.2	731.9	385.5	360.6	24.92	15.470			
5,400.0	5,379.6	5,394.4	5,329.9	13.8	18.3	24.75	156.9	748.6	394.7	369.4	25.32	15.590			
5,500.0	5,479.6	5,509.7	5,444.5	14.0	18.5	24.59	159.6	760.9	403.1	377.5	25.66	15.711			
5,600.0	5,579.6	5,625.5	5,560.1	14.2	18.7	90.10	161.3	768.7	409.8	383.8	26.03	15.743			
5,700.0	5,679.6	5,741.8	5,676.3	14.4	18.9	90.00	162.0	772.0	412.6	386.2	26.43	15.609			
5,800.0	5,779.6	5,845.1	5,779.6	14.6	19.1	90.00	162.0	772.1	412.7	385.8	26.83	15.383			
5,900.0	5,879.6	5,945.1	5,879.6	14.7	19.2	90.00	162.0	772.1	412.7	385.4	27.22	15.159			
5,926.5	5,906.1	5,971.5	5,906.1	14.8	19.2	-89.99	161.9	772.1	412.7	385.3	27.32	15.103			
6,000.0	5,979.6	6,044.7	5,979.1	14.9	19.3	-89.33	157.0	772.1	412.7	385.1	27.63	14.937			
6,100.0	6,079.2	6,143.1	6,075.7	15.1	19.4	-88.03	139.6	772.1	412.9	384.9	27.97	14.761			
6,200.0	6,176.8	6,240.2	6,168.3	15.2	19.5	-86.77	110.3	772.1	413.3	385.1	28.23	14.639			
6,300.0	6,270.8	6,336.4	6,255.6	15.3	19.5	-85.57	70.0	772.1	413.9	385.5	28.44	14.554			
6,400.0	6,359.6	6,431.5	6,336.2	15.3	19.6	-84.45	19.7	772.1	414.6	386.0	28.64	14.477			
6,500.0	6,441.6	6,525.8	6,409.4	15.4	19.7	-83.43	-39.7	772.1	415.4	386.5	28.91	14.367			
6,600.0	6,515.5	6,619.4	6,474.2	15.6	19.8	-82.52	-107.1	772.1	416.2	386.9	29.34	14.187			
6,700.0	6,580.0	6,712.2	6,529.9	15.8	20.0	-81.74	-181.4	772.1	417.0	387.0	30.01	13.897			
6,800.0	6,633.9	6,804.6	6,575.9	16.2	20.3	-81.09	-261.3	772.1	417.7	386.7	31.00	13.475			
6,900.0	6,676.4	6,896.5	6,611.9	16.8	20.7	-80.58	-345.8	772.1	418.3	386.0	32.37	12.924			
7,000.0	6,706.8	6,988.1	6,637.3	17.6	21.3	-80.22	-433.8	772.1	418.8	384.6	34.12	12.272			
7,100.0	6,724.4	7,079.4	6,652.1	18.6	22.0	-80.01	-523.9	772.1	419.0	382.8	36.24	11.564			
7,200.0	6,729.1	7,171.4	6,656.0	19.8	22.8	-79.95	-615.7	772.1	419.1	380.5	38.64	10.847			
7,300.0	6,728.1	7,271.4	6,655.3	21.0	23.9	-80.00	-715.7	772.1	419.0	377.9	41.17	10.178			
7,400.0	6,727.0	7,371.4	6,654.5	22.3	25.0	-80.04	-815.7	772.1	419.0	375.1	43.88	9.549			
7,500.0	6,725.9	7,471.4	6,653.8	23.8	26.3	-80.09	-915.7	772.1	418.9	372.2	46.74	8.964			
7,600.0	6,724.9	7,571.4	6,653.1	25.3	27.6	-80.13	-1,015.7	772.1	418.9	369.1	49.72	8.424			
7,700.0	6,723.8	7,671.4	6,652.3	26.8	29.0	-80.18	-1,115.7	772.1	418.8	366.0	52.81	7.930			
7,800.0	6,722.7	7,771.4	6,651.6	28.4	30.5	-80.22	-1,215.7	772.1	418.8	362.8	55.99	7.479			
7,900.0	6,721.7	7,871.4	6,650.9	30.0	32.0	-80.27	-1,315.7	772.1	418.7	359.5	59.24	7.068			
8,000.0	6,720.6	7,971.4	6,650.1	31.7	33.6	-80.31	-1,415.7	772.1	418.6	356.1	62.55	6.693			
8,100.0	6,719.5	8,071.4	6,649.4	33.4	35.2	-80.35	-1,515.7	772.1	418.6	352.7	65.92	6.350			
8,200.0	6,718.5	8,171.4	6,648.7	35.1	36.8	-80.40	-1,615.7	772.1	418.5	349.2	69.33	6.037			
8,300.0	6,717.4	8,271.4	6,647.9	36.8	38.4	-80.44	-1,715.7	772.1	418.5	345.7	72.78	5.750			
8,400.0	6,716.3	8,371.4	6,647.2	38.6	40.1	-80.49	-1,815.7	772.1	418.4	342.2	76.26	5.487			
8,500.0	6,715.3	8,471.4	6,646.5	40.3	41.8	-80.53	-1,915.7	772.1	418.4	338.6	79.78	5.244			
8,600.0	6,714.2	8,571.4	6,645.7	42.1	43.5	-80.58	-2,015.7	772.1	418.3	335.0	83.32	5.021			
8,700.0	6,713.1	8,671.4	6,645.0	43.9	45.3	-80.62	-2,115.7	772.1	418.3	331.4	86.88	4.814			
8,800.0	6,712.1	8,771.4	6,644.3	45.7	47.0	-80.67	-2,215.7	772.1	418.2	327.7	90.46	4.623			
8,900.0	6,711.0	8,871.4	6,643.5	47.5	48.8	-80.71	-2,315.7	772.1	418.2	324.1	94.07	4.445			
9,000.0	6,710.0	8,971.4	6,642.8	49.3	50.5	-80.76	-2,415.7	772.1	418.1	320.4	97.68	4.280			
9,100.0	6,708.9	9,071.4	6,642.1	51.1	52.3	-80.80	-2,515.7	772.1	418.0	316.7	101.32	4.126			
9,200.0	6,707.8	9,171.4	6,641.3	53.0	54.1	-80.85	-2,615.7	772.1	418.0	313.0	104.96	3.982			
9,300.0	6,706.8	9,271.4	6,640.6	54.8	55.9	-80.89	-2,715.7	772.1	417.9	309.3	108.62	3.848			
9,400.0	6,705.7	9,371.4	6,639.9	56.7	57.7	-80.94	-2,815.7	772.1	417.9	305.6	112.29	3.722			
9,500.0	6,704.6	9,471.4	6,639.1	58.5	59.5	-80.98	-2,915.7	772.1	417.8	301.9	115.96	3.603			
9,600.0	6,703.6	9,571.4	6,638.4	60.4	61.4	-81.03	-3,015.7	772.1	417.8	298.1	119.65	3.492			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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)	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	
9,700.0	6,702.5	9,671.4	6,637.7	62.2	63.2	-81.07	-3,115.6	772.1	417.7	294.4	123.35	3.387		
9,800.0	6,701.4	9,771.4	6,636.9	64.1	65.0	-81.12	-3,215.6	772.1	417.7	290.6	127.05	3.288		
9,900.0	6,700.4	9,871.4	6,636.2	65.9	66.9	-81.16	-3,315.6	772.1	417.6	286.9	130.76	3.194		
10,000.0	6,699.3	9,971.4	6,635.5	67.8	68.7	-81.21	-3,415.6	772.1	417.6	283.1	134.47	3.105		
10,100.0	6,698.2	10,071.4	6,634.7	69.7	70.5	-81.25	-3,515.6	772.1	417.5	279.3	138.19	3.021		
10,200.0	6,697.2	10,171.4	6,634.0	71.6	72.4	-81.30	-3,615.6	772.1	417.5	275.6	141.92	2.942		
10,300.0	6,696.1	10,271.4	6,633.3	73.4	74.3	-81.34	-3,715.6	772.1	417.4	271.8	145.65	2.866		
10,400.0	6,695.0	10,371.4	6,632.5	75.3	76.1	-81.39	-3,815.6	772.1	417.4	268.0	149.39	2.794		
10,500.0	6,694.0	10,471.4	6,631.8	77.2	78.0	-81.43	-3,915.6	772.1	417.3	264.2	153.13	2.725		
10,600.0	6,692.9	10,571.4	6,631.1	79.1	79.8	-81.48	-4,015.6	772.1	417.3	260.4	156.88	2.660		
10,700.0	6,691.9	10,671.4	6,630.3	80.9	81.7	-81.52	-4,115.6	772.1	417.2	256.6	160.63	2.597		
10,800.0	6,690.8	10,771.4	6,629.6	82.8	83.6	-81.57	-4,215.6	772.1	417.2	252.8	164.38	2.538		
10,900.0	6,689.7	10,871.4	6,628.9	84.7	85.4	-81.61	-4,315.6	772.1	417.1	249.0	168.14	2.481		
11,000.0	6,688.7	10,971.4	6,628.1	86.6	87.3	-81.66	-4,415.6	772.1	417.1	245.2	171.90	2.426		
11,100.0	6,687.6	11,071.4	6,627.4	88.5	89.2	-81.70	-4,515.6	772.1	417.0	241.4	175.67	2.374		
11,156.0	6,687.0	11,127.4	6,627.0	89.4	90.2	-81.73	-4,571.6	772.1	417.0	239.4	177.58	2.348 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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		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	58.5	58.5	58.5	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	89.99	0.0	58.5	58.5	58.3	0.23	257.791		
200.0	200.0	201.0	201.0	0.3	0.3	89.99	0.0	58.5	58.5	57.8	0.68	86.501		
300.0	300.0	301.0	301.0	0.6	0.6	89.99	0.0	58.5	58.5	57.4	1.13	51.970		
400.0	400.0	401.0	401.0	0.8	0.8	89.99	0.0	58.5	58.5	56.9	1.58	37.142		
466.3	466.3	467.3	467.3	0.9	0.9	89.99	0.0	58.5	58.5	56.6	1.87	31.232 CC		
500.0	500.0	500.0	500.0	1.0	1.0	89.99	0.0	58.5	58.5	56.5	2.02	28.934 ES		
600.0	600.0	599.0	598.9	1.2	1.2	89.74	0.3	60.2	60.2	57.8	2.46	24.487		
700.0	700.0	696.7	696.6	1.5	1.4	89.08	1.0	65.2	65.4	62.5	2.90	22.571		
800.0	800.0	794.0	793.5	1.7	1.7	88.18	2.3	73.4	73.8	70.5	3.35	22.068		
900.0	900.0	890.6	889.4	1.9	1.9	87.23	4.1	84.8	85.7	81.9	3.82	22.443		
1,000.0	1,000.0	986.4	984.0	2.1	2.2	86.35	6.3	99.2	100.9	96.5	4.32	23.360		
1,100.0	1,100.0	1,081.0	1,077.0	2.4	2.5	85.57	9.0	116.5	119.3	114.5	4.85	24.594		
1,200.0	1,200.0	1,176.9	1,170.7	2.6	2.9	84.92	12.2	136.7	140.5	135.1	5.43	25.900		
1,300.0	1,300.0	1,274.6	1,266.1	2.8	3.3	84.42	15.4	157.5	162.1	156.0	6.03	26.889		
1,400.0	1,400.0	1,372.2	1,361.4	3.0	3.7	84.04	18.6	178.3	183.6	177.0	6.64	27.645		
1,500.0	1,500.0	1,469.8	1,456.8	3.3	4.1	83.73	21.9	199.1	205.2	197.9	7.27	28.235		
1,600.0	1,600.0	1,567.8	1,552.5	3.5	4.6	17.77	25.1	220.0	225.1	218.1	6.99	32.217		
1,700.0	1,699.8	1,666.4	1,648.7	3.7	5.0	17.83	28.4	241.1	241.8	234.3	7.44	32.484		
1,800.0	1,799.5	1,765.5	1,745.5	3.9	5.5	18.14	31.7	262.2	255.1	247.2	7.90	32.295		
1,900.0	1,898.9	1,864.8	1,842.4	4.1	5.9	18.62	35.0	283.3	266.7	258.4	8.37	31.858		
2,000.0	1,998.3	1,964.1	1,939.4	4.4	6.4	19.06	38.2	304.5	278.4	269.5	8.85	31.451		
2,100.0	2,097.8	2,063.4	2,036.4	4.6	6.8	19.46	41.5	325.7	290.0	280.7	9.33	31.073		
2,200.0	2,197.2	2,162.7	2,133.3	4.9	7.3	19.84	44.8	346.9	301.7	291.8	9.82	30.722		
2,300.0	2,296.6	2,262.0	2,230.3	5.1	7.8	20.18	48.1	368.0	313.3	303.0	10.31	30.396		
2,400.0	2,396.1	2,361.3	2,327.2	5.4	8.2	20.51	51.4	389.2	325.0	314.2	10.80	30.092		
2,500.0	2,495.5	2,460.6	2,424.2	5.7	8.7	20.81	54.7	410.4	336.7	325.4	11.30	29.808		
2,600.0	2,594.9	2,559.9	2,521.2	5.9	9.1	21.09	58.0	431.5	348.4	336.6	11.79	29.543		
2,700.0	2,694.4	2,659.2	2,618.1	6.2	9.6	21.35	61.3	452.7	360.1	347.8	12.29	29.295		
2,800.0	2,793.8	2,758.5	2,715.1	6.5	10.1	21.59	64.6	473.9	371.8	359.0	12.79	29.062		
2,900.0	2,893.2	2,857.8	2,812.1	6.8	10.5	21.82	67.8	495.0	383.5	370.2	13.30	28.843		
3,000.0	2,992.7	2,957.1	2,909.0	7.0	11.0	22.04	71.1	516.2	395.2	381.4	13.80	28.637		
3,100.0	3,092.1	3,056.4	3,006.0	7.3	11.5	22.24	74.4	537.4	407.0	392.6	14.31	28.443		
3,200.0	3,191.6	3,155.7	3,102.9	7.6	11.9	22.43	77.7	558.6	418.7	403.9	14.82	28.260		
3,300.0	3,291.0	3,255.0	3,199.9	7.9	12.4	22.62	81.0	579.7	430.4	415.1	15.32	28.087		
3,400.0	3,390.4	3,354.3	3,296.9	8.2	12.9	22.79	84.3	600.9	442.2	426.3	15.83	27.923		
3,500.0	3,489.9	3,453.6	3,393.8	8.5	13.3	22.95	87.6	622.1	453.9	437.6	16.35	27.768		
3,600.0	3,589.3	3,552.9	3,490.8	8.7	13.8	23.11	90.9	643.2	465.6	448.8	16.86	27.621		
3,700.0	3,688.7	3,652.2	3,587.7	9.0	14.3	23.25	94.2	664.4	477.4	460.0	17.37	27.481		
3,800.0	3,788.2	3,751.5	3,684.7	9.3	14.7	23.39	97.5	685.6	489.1	471.3	17.89	27.348		
3,900.0	3,887.6	3,850.8	3,781.7	9.6	15.2	23.53	100.7	706.7	500.9	482.5	18.40	27.222		
4,000.0	3,987.0	3,950.1	3,878.6	9.9	15.7	23.66	104.0	727.9	512.7	493.7	18.92	27.101		
4,100.0	4,086.5	4,049.4	3,975.6	10.2	16.1	23.78	107.3	749.1	524.4	505.0	19.43	26.986		
4,200.0	4,185.9	4,148.7	4,072.6	10.5	16.6	23.89	110.6	770.3	536.2	516.2	19.95	26.876		
4,300.0	4,285.3	4,248.0	4,169.5	10.8	17.1	24.01	113.9	791.4	547.9	527.5	20.47	26.771		
4,400.0	4,384.8	4,347.3	4,266.5	11.1	17.5	24.11	117.2	812.6	559.7	538.7	20.99	26.671		
4,500.0	4,484.2	4,446.6	4,363.4	11.3	18.0	24.22	120.5	833.8	571.5	550.0	21.50	26.574		
4,600.0	4,583.7	4,545.9	4,460.4	11.6	18.5	24.31	123.8	854.9	583.2	561.2	22.02	26.482		
4,700.0	4,683.1	4,645.2	4,557.4	11.9	19.0	24.41	127.1	876.1	595.0	572.5	22.54	26.394		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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			
4,800.0	4,782.5	4,744.5	4,654.3	12.2	19.4	24.50	130.4	897.3	606.8	583.7	23.06	26.309			
4,900.0	4,882.0	4,843.8	4,751.3	12.5	19.9	24.59	133.6	918.4	618.6	595.0	23.58	26.227			
5,000.0	4,981.4	4,943.1	4,848.2	12.8	20.4	24.67	136.9	939.6	630.3	606.2	24.11	26.148			
5,100.0	5,080.8	5,042.4	4,945.2	13.1	20.8	24.75	140.2	960.8	642.1	617.5	24.63	26.073			
5,200.0	5,180.3	5,141.7	5,042.2	13.4	21.3	24.83	143.5	981.9	653.9	628.7	25.15	26.000			
5,300.0	5,279.8	5,240.9	5,139.0	13.6	21.8	24.95	146.8	1,003.1	666.8	641.2	25.62	26.022			
5,400.0	5,379.6	5,339.6	5,235.4	13.8	22.2	25.00	150.1	1,024.1	682.8	656.7	26.03	26.229			
5,500.0	5,479.6	5,453.8	5,347.0	14.0	22.7	24.92	153.7	1,047.7	701.3	674.9	26.41	26.554			
5,600.0	5,579.6	5,584.2	5,475.6	14.2	23.1	90.39	157.2	1,069.7	718.1	691.2	26.84	26.755			
5,700.0	5,679.6	5,716.5	5,606.7	14.4	23.4	90.18	159.7	1,086.1	730.4	703.2	27.29	26.767			
5,800.0	5,779.6	5,850.0	5,739.8	14.6	23.7	90.05	161.3	1,096.5	738.3	710.5	27.73	26.626			
5,900.0	5,879.6	5,984.2	5,873.9	14.7	23.9	90.00	162.0	1,100.8	741.5	713.3	28.15	26.339			
6,000.0	5,979.6	6,090.8	5,980.6	14.9	24.0	-90.01	162.0	1,101.0	741.6	713.0	28.53	25.990			
6,100.0	6,079.2	6,190.8	6,080.6	15.1	24.1	-90.58	161.0	1,101.0	741.6	712.8	28.80	25.747			
6,200.0	6,176.8	6,292.0	6,181.0	15.2	24.2	-91.32	149.0	1,101.0	741.8	712.8	28.99	25.588			
6,300.0	6,270.8	6,394.5	6,280.1	15.3	24.2	-92.04	123.4	1,101.0	742.0	712.9	29.14	25.465			
6,400.0	6,359.6	6,498.3	6,376.2	15.3	24.3	-92.73	84.2	1,101.0	742.4	713.1	29.31	25.326			
6,500.0	6,441.6	6,603.4	6,467.1	15.4	24.3	-93.37	31.7	1,101.0	742.9	713.3	29.58	25.110			
6,600.0	6,515.5	6,709.8	6,550.9	15.6	24.4	-93.96	-33.7	1,101.0	743.4	713.3	30.02	24.761			
6,700.0	6,580.0	6,817.3	6,625.6	15.8	24.5	-94.48	-110.9	1,101.0	743.8	713.1	30.70	24.229			
6,800.0	6,633.9	6,925.8	6,689.2	16.2	24.7	-94.92	-198.7	1,101.0	744.3	712.6	31.67	23.499			
6,900.0	6,676.4	7,035.2	6,740.1	16.8	25.1	-95.27	-295.4	1,101.0	744.7	711.7	32.98	22.584			
7,000.0	6,706.8	7,145.2	6,776.9	17.6	25.5	-95.52	-399.1	1,101.0	745.0	710.4	34.61	21.528			
7,100.0	6,724.4	7,255.8	6,798.4	18.6	26.1	-95.67	-507.3	1,101.0	745.2	708.7	36.55	20.388			
7,200.0	6,729.1	7,364.9	6,804.3	19.8	26.9	-95.71	-616.3	1,101.0	745.3	706.5	38.75	19.233			
7,300.0	6,728.1	7,464.9	6,804.3	21.0	27.7	-95.80	-716.2	1,101.0	745.4	704.2	41.22	18.084			
7,400.0	6,727.0	7,564.9	6,804.3	22.3	28.7	-95.88	-816.2	1,101.0	745.5	701.6	43.87	16.993			
7,500.0	6,725.9	7,664.9	6,804.4	23.8	29.8	-95.96	-916.2	1,101.0	745.6	698.9	46.68	15.972			
7,600.0	6,724.9	7,764.9	6,804.4	25.3	30.9	-96.04	-1,016.2	1,101.0	745.7	696.1	49.63	15.027			
7,700.0	6,723.8	7,864.9	6,804.4	26.8	32.2	-96.13	-1,116.2	1,101.0	745.8	693.1	52.68	14.157			
7,800.0	6,722.7	7,964.9	6,804.4	28.4	33.5	-96.21	-1,216.2	1,101.0	745.9	690.1	55.83	13.361			
7,900.0	6,721.7	8,064.9	6,804.4	30.0	34.8	-96.29	-1,316.2	1,101.0	746.1	687.0	59.05	12.634			
8,000.0	6,720.6	8,164.9	6,804.4	31.7	36.3	-96.37	-1,416.2	1,101.0	746.2	683.8	62.34	11.969			
8,100.0	6,719.5	8,264.9	6,804.5	33.4	37.7	-96.46	-1,516.2	1,101.0	746.3	680.6	65.69	11.362			
8,200.0	6,718.5	8,364.9	6,804.5	35.1	39.2	-96.54	-1,616.2	1,101.0	746.4	677.3	69.08	10.806			
8,300.0	6,717.4	8,464.8	6,804.5	36.8	40.8	-96.62	-1,716.2	1,101.0	746.5	674.0	72.51	10.296			
8,400.0	6,716.3	8,564.8	6,804.5	38.6	42.4	-96.70	-1,816.2	1,101.0	746.7	670.7	75.97	9.828			
8,500.0	6,715.3	8,664.8	6,804.5	40.3	44.0	-96.79	-1,916.2	1,101.0	746.8	667.3	79.47	9.398			
8,600.0	6,714.2	8,764.8	6,804.6	42.1	45.6	-96.87	-2,016.2	1,101.0	746.9	663.9	82.99	9.000			
8,700.0	6,713.1	8,864.8	6,804.6	43.9	47.3	-96.95	-2,116.2	1,101.0	747.1	660.5	86.53	8.633			
8,800.0	6,712.1	8,964.8	6,804.6	45.7	48.9	-97.03	-2,216.2	1,101.0	747.2	657.1	90.09	8.293			
8,900.0	6,711.0	9,064.8	6,804.6	47.5	50.6	-97.12	-2,316.2	1,101.0	747.3	653.6	93.67	7.978			
9,000.0	6,710.0	9,164.8	6,804.6	49.3	52.3	-97.20	-2,416.1	1,101.0	747.5	650.2	97.27	7.684			
9,100.0	6,708.9	9,264.8	6,804.6	51.1	54.1	-97.28	-2,516.1	1,101.0	747.6	646.7	100.88	7.411			
9,200.0	6,707.8	9,364.8	6,804.7	53.0	55.8	-97.36	-2,616.1	1,101.0	747.7	643.2	104.50	7.155			
9,300.0	6,706.8	9,464.8	6,804.7	54.8	57.5	-97.45	-2,716.1	1,101.0	747.9	639.7	108.13	6.916			
9,400.0	6,705.7	9,564.8	6,804.7	56.7	59.3	-97.53	-2,816.1	1,101.0	748.0	636.2	111.77	6.692			
9,500.0	6,704.6	9,664.8	6,804.7	58.5	61.1	-97.61	-2,916.1	1,101.0	748.2	632.7	115.42	6.482			
9,600.0	6,703.6	9,764.8	6,804.7	60.4	62.8	-97.69	-3,016.1	1,101.0	748.3	629.2	119.07	6.284			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	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
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	6,702.5	9,864.8	6,804.7	62.2	64.6	-97.77	-3,116.1	1,101.0	748.4	625.7	122.74	6.098		
9,800.0	6,701.4	9,964.8	6,804.8	64.1	66.4	-97.86	-3,216.1	1,101.0	748.6	622.2	126.40	5.922		
9,900.0	6,700.4	10,064.8	6,804.8	65.9	68.2	-97.94	-3,316.1	1,101.0	748.7	618.7	130.08	5.756		
10,000.0	6,699.3	10,164.7	6,804.8	67.8	70.0	-98.02	-3,416.1	1,101.0	748.9	615.1	133.76	5.599		
10,100.0	6,698.2	10,264.7	6,804.8	69.7	71.8	-98.10	-3,516.1	1,101.0	749.0	611.6	137.44	5.450		
10,200.0	6,697.2	10,364.7	6,804.8	71.6	73.7	-98.18	-3,616.1	1,101.0	749.2	608.1	141.12	5.309		
10,300.0	6,696.1	10,464.7	6,804.9	73.4	75.5	-98.27	-3,716.1	1,101.0	749.3	604.5	144.81	5.175		
10,400.0	6,695.0	10,564.7	6,804.9	75.3	77.3	-98.35	-3,816.1	1,101.0	749.5	601.0	148.50	5.047		
10,500.0	6,694.0	10,664.7	6,804.9	77.2	79.1	-98.43	-3,916.1	1,101.0	749.7	597.5	152.20	4.926		
10,600.0	6,692.9	10,764.7	6,804.9	79.1	81.0	-98.51	-4,016.1	1,101.0	749.8	593.9	155.89	4.810		
10,700.0	6,691.9	10,864.7	6,804.9	80.9	82.8	-98.59	-4,116.0	1,101.0	750.0	590.4	159.59	4.699		
10,800.0	6,690.8	10,964.7	6,804.9	82.8	84.7	-98.67	-4,216.0	1,101.0	750.1	586.9	163.29	4.594		
10,900.0	6,689.7	11,064.7	6,805.0	84.7	86.5	-98.76	-4,316.0	1,101.0	750.3	583.3	166.99	4.493		
11,000.0	6,688.7	11,164.7	6,805.0	86.6	88.4	-98.84	-4,416.0	1,101.0	750.5	579.8	170.70	4.397		
11,100.0	6,687.6	11,264.7	6,805.0	88.5	90.2	-98.92	-4,516.0	1,101.0	750.6	576.2	174.40	4.304		
11,156.0	6,687.0	11,320.7	6,805.0	89.4	91.3	-98.97	-4,572.0	1,101.0	750.7	574.5	176.27	4.259 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (8-01-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4680.5ft (Ensign Rig #136 - Coordinates are relative to: Suden 34R-323

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°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Suden 34R-323
Project:	SEC.34-T5N-R64W	TVD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Reference Site:	Suden 34U-HZ Pad Sec.34-T5N-R64W	MD Reference:	WELL @ 4680.5ft (Ensign Rig #136 - RKB - 12.5)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Suden 34R-323	Survey Calculation Method:	Minimum Curvature
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